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PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

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NEW YORK AND CHICAGO, JULY 3, 1924

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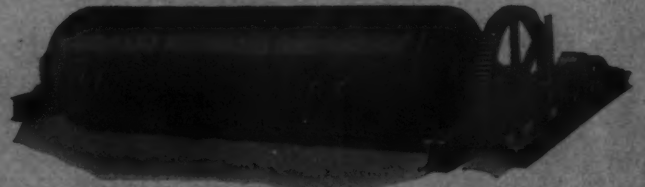
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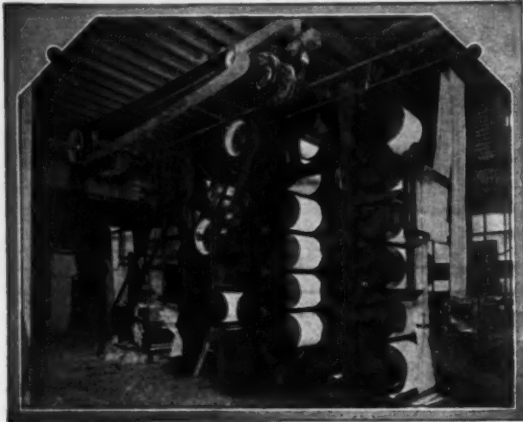


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THE INTERNATIONAL WEEKLY OF THE PAPER
AND PULP INDUSTRY AND THE PIONEER
PUBLICATION IN ITS FIELD

FIFTY-THIRD YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., INC.

LESLIE R. PALME PRESIDENT GEO. S. MACDONALD VICE-PRESIDENT & TREAS. F. K. HOPPIE SECRETARY
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TABLE OF CONTENTS

Copyright, 1924, Lockwood Trade Journal Co., Inc.	
	PAGE
President Graustein Denies Riordon Purchase.....	33
Eddy Co.'s Plant at Hull to be Greatly Improved...	34
Pulp Conditions Better in Canada.....	34
Howard Smith Mills Cut Dividends.....	34
Bay Sulphite Co. Plans Prepared.....	34
Pulpwood Commission's Report.....	34
Business Quiet in Chicago.....	35
F. D. Wilson Sees Better Future for Boards.....	35
Little Change in Paper Stock in Chicago.....	35
T. E. Dial Visits Western Mills.....	35
Kimberly-Clark Co. Directors Meet.....	35
Demand in Philadelphia Declines.....	36
Anderson Paper Co. Adds to Officers.....	36
Pennsylvania Paper Products Co. Expounds.....	36
General Paper Products Co. Sold.....	36
Can Bond Papers be Standardized?.....	38
New York Trade Jottings.....	42
OBITUARY	44
Trade Mark Department	46
EDITORIAL	49
Fire Damages Pulp and Paper Mills.....	49
Early Decision on Wrapping Imports.....	49
Foreign Paper Importers and Dealers.....	49
Guide for Importers and Exporters.....	49
To Rebuild Wood Flour Mill at Napanoch.....	49
F. T. Ball Joins Lacey Securities Corp.....	55
Has Paper Mill Project Been Abandoned?.....	55
A. B. Sternfield Joins Bogalusa Paper Co.....	55
Simplification's Program Cleared Up.....	58
Reorganization of American Writing Paper Co.....	58
Paper Imports and Exports for April.....	64
Imports of Paper and Paper Stock.....	70
American Paper in Mexico	70
History of Superheater Co.....	70
Goes With Union Paper and Twine Co.....	70
MARKET QUOTATIONS	72
Secure Use of Ashland Dock.....	73
New Riverside Plant Operating.....	73
W. N. Ellis Returns to Whitaker Paper Co.....	73
NEW YORK MARKET REVIEW.....	74
Bids for Government Paper.....	74
MISCELLANEOUS MARKETS	76

Want and For Sale Advertisements, Pages 78 & 79



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PAPER TRADE JOURNAL

ESTABLISHED IN 1872

Vol. LXXIX No. 1

NEW YORK AND CHICAGO

Thursday, July 3, 1924

PRESIDENT GRAUSTEIN DENIES RIORDON PURCHASE

Head of International Paper Company Says There is No Truth in Montreal Story Regarding Purported Acquisition of Riordon Property—Says Rumors Have Doubtless Sprung from Fact That for Two or Three Years He Was Factor in the Riordon Situation—The Story as Sent Out This Week from Montreal and What President Graustein Says in Reply to It.

President A. R. Graustein of the International Paper Company this week denied that there was any truth to the story sent out from Montreal to the effect that the International has acquired the Riordon Company, Limited, of Canada, and had completed plans for its financing.

In denying the story to a representative of the PAPER TRADE JOURNAL, President Graustein said:

"Many unwarranted conclusions have been drawn because of the fact that for two or three years I have been a factor in the Riordon situation. No decision whatever has been reached concerning the purchase of the Riordon interests and no plans have been formulated for financing it."

Owens Two Bleached Sulphite Mills

The Riordon Company owns two bleached sulphite mills, one with a daily capacity of 135 tons at Hawkesbury, Ont., and another, the newest plant of its sort on the continent, at Kipawa, Quebec, with a daily capacity of 165 tons.

The Riordon Company found itself in financial difficulties after the erection of the Kipawa mill. A reorganization by the stockholders was unsuccessful and the property is now being administered by a liquidator. The company has timber limits comprising over 9,000 square miles of Crown land in Quebec.

The Story as Sent Out from Montreal

The story of the purported purchase has found its way into print in numerous publications, the essential facts in all reports being identical. Following is the version sent the PAPER TRADE JOURNAL by its special correspondent in Montreal:

It is announced here with every degree of assurance that complete acquisition of the Riordon Company Limited by the International Paper Company is about to go into effect. The name Riordon, it is stated, will be dropped and a Canadian operating subsidiary of the International Paper Company will assume control. Following this, it is understood that the International will gradually shift its operations to Canada and confine its American operations to its hydro-electric enterprises. It is further stated that the Company will secure control of the Carillon Power project on the Ottawa River between Montreal and Ottawa.

Mr. Graustein's Riordon Connection

Under the plan it is expected that Riordon creditors and bondholders will receive a satisfactory settlement but it is not believed that common and preference shareholders will receive anything. The developments have followed swiftly on the election of A. R.

Graustein to the presidency of the International Paper Company. Mr. Graustein has been intimately associated with the Riordon situation since the financial collapse of the company. It is understood that the proceeds of the International's new financings, to the extent of \$10,000,000, will be utilized largely in carrying out the Riordon acquisition.

Fine Pulpwood Limits

If the plan is consummated the International Paper Company will secure control of what is regarded as the finest and largest pulpwood limits now available on this continent. These include limits tributary to Kipawa covering over 2,500 square miles in the watershed of the Upper Ottawa River. It is estimated that these limits contain nearly 7,000,000 cords of cordwood, as well as 100,000,000 b.m. pine timber. In addition, there are limits at Hawkesbury and in the Gatineau Valley. The former cover 1,200 square miles with an estimated 2,000,000 cords of pulpwood. The latter cover 5,800 square miles and contain 12,000,000 cords of pulpwood and over 7,000,000 feet of pine. Altogether, the limits having a total of 9,500 square miles and contain over 20,000,000 cords of pulpwood.

Controls Valuable Power Sites

The Riordon Company also owns and controls extraordinarily valuable water power sites, with capacity of total development of about 160,000 h.p. These sites include two falls on the Gatineau, one on the Quinze River and another on the North Nation River, near Hawkesbury. There is also developed 7,200 h.p. at Kipawa, with a capacity of 21,000 h.p.; and other lesser developments. If, as now seems to be expected, the company also secures control of the Carillon development, the total possible power development under its control is estimated by some to amount to something approaching 500,000 h.p.

The Riordon Plant

Present Riordon plants have a combined capacity of 100,000 tons a year of pulp; Kipawa capacity is 50,000 tons of bleached sulphite pulp; Hawkesbury, 25,000 tons, and Merritton 9,000 tons, while Ticonderoga can produce 11,000 tons of soda pulp as well as 17,000 tons of book paper, the latter being the only paper plant which Riordon possesses. There are also a number of sawmills. It is believed that International interests would foster the production of news print wherever possible, and that as a means to this end they would undertake the construction of additional modern plants similar in efficiency and character to the Three Rivers mill.

EDDY CO.'S PLANT AT HULL TO BE GREATLY IMPROVED

Plan to Spend \$2,000,000 on Building Program During Next Year Making One of the Most Modern News Print and Sulphite Plants on the North American Continent—Better Tone in Pulp Market—Howard Smith Paper Mills, Ltd., Reduce Dividends—Substantial Progress Made in Re-organization of the Bay Sulphite Co.—Hope to Report of Pulpwood Commission Before Parliament Closes.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., June 30, 1924.—Plans for additions, alterations and improvements to the plant of the E. B. Eddy Company, Limited, at Hull, Que., involving an expenditure of about \$2,000,000 have been approved by the directors of the company and the initial work has been started. Within a few days between 300 and 400 men will be engaged by the contractors, and, as the terms of the contracts call for employment of unskilled labor in Hull, residents of the city and district will be ensured of steady employment until May 1, 1925, when the contracts must be completed. It is the biggest building program to be instituted by any firm in the history of Hull, and upon completion, the E. B. Eddy Company, Ltd., will have one of the most modern news print and sulphite plants in America. The news print output will be doubled as will be the production of sulphite. The contracts let have been for about 75 per cent of the amount to be expended, and the balance will be devoted to the purchase of new equipment. The various buildings will be connected by a private standard gauge railway and it will be necessary to construct two substantial bridges on the company's property. The company has also spent considerable money in opening up new timber limits many miles north of Maniwaki and it is planned to float logs direct to the mills in Hull. This would result in quicker and more efficient delivery of raw material. The E. B. Eddy company announced some time ago that the match factory would likely be removed from Hull but now asserts that, following the agreement with the city regarding local taxation, the plans were changed and the factory would remain there. The present output of the newsprint and sulphite mills will be 100 tons and 60 tons respectively per day, and the number of employes will be increased from 1,400 to about 2,400.

Pulp Conditions Are Better

Local reports are to the effect that a better tone has developed in the pulp market, largely as a result in the clean-up of excess stocks on hand at some eastern mills, notably Bay Sulphite. Prices, it was said, have also developed an improving tendency. Bay sulphite, which is to be taken out of liquidation, has been doing better lately and is now making a good margin over interest charges.

Buys Seigneury Timber

Through the Mont Louis Lumber Company, which is to be issued letters patent shortly, it is understood that the St. Regis Pulp and Paper Company, will own the interests on the Mont Louis Seigneury, which was recently purchased by the George Hall Coal and Shipping Corporation at a price said to reach over \$500,000. For years the Seigneury, which includes 74,000 acres of freehold land and 69 square miles of timber, had been in the hands of New York interests, which were utilizing it simply for sporting purposes. It is understood that through the recent deal the limits will be exploited and the fact that the St. Regis interests have already a large area of lands on the North Shore across the St. Lawrence from the point of Gaspé Peninsula, is interpreted as meaning that the timber will be shipped by water to the American mills of the company. Although the Saint Regis has decided not to erect a Canadian mill at

Cap Rouge, Que., as first intended, it is reported authoritatively that this is only a delay for a year or so and that the plans of the company regarding Quebec Province may mature next year.

Howard Smith Cuts Dividend

The directors of the Howard Smith Paper Mills, Limited, have reduced the dividend on the common stock from 6 to 4 per cent. C. Howard Smith, the president, in explanation, says that conditions of the business make it necessary to build up a larger working capital. He stated that this had improved from \$921,806 at the end of 1923 to \$1,294,642 at the end of May this year, or well in excess of the amount stipulated in the bond issue made this year. He stated earnings for the first five months of the fiscal year are ahead of last year, and after bond interest there remained a balance of \$196,239 against \$185,745. The dividend cut represents a saving of \$75,000 a year. It was pointed out mills were busy, with Cornwall and Crabtree at full capacity and Beauharnois 80 per cent. New extensions are nearing completion and are already helping earnings. Mr. Smith then refers to the current business uncertainty and the clouded outlook for the remainder of the year, and for this reason, in order to protect the company as much as possible, the above dividend action was decided upon.

Bay Sulphite Co. Plans Prepared

Substantial progress it is learned has been made in connection with the re-organization of Bay Sulphite Company, and it is understood that unless unforeseen circumstances arise, the announcement of the conditions will be made very shortly. It is believed that the outcome will prove satisfactory to the bondholders. In the meantime the mills of the company are running to capacity with production of 160 tons daily of sulphite pulp, all of which is being shipped to the United States Market. In addition the Chandler Mill is also operating and it is understood that even under present unfavorable conditions in the pulp market, the company is earning more than its bond interest. Bay Sulphite Company is in the satisfactory position of having an ample supply of pulpwood on hand as the result of the winter's woods operations and expects to continue operating its plants right through. It is learned that improvements have been made in connection with the mill and the pulpwood supply that enables the company to turn out cheaper pulp than has ever been the case before.

Pulpwood Commission's Report

Members of the Canadian Parliament are expressing a desire to have the Pulpwood Commission's report regarding the proposed embargo before them before the present session of Parliament closes, but so far have not been able to get a definite promise from the Government. The following discussion on the matter took place in the House of Commons recently:

Right Hon. Arthur Meighen (Leader of the Opposition): I want to ask the—I guess he will be Acting Minister of Finance in this respect—when this Pulpwood Commission report is to come down? Will it be down in time for action this session, or are they still in Washington or New York?

Hon. J. A. Robb (Acting Minister of Finance): No, they are not in Washington or New York. I am just as anxious as my honorable friend is to have the commission conclude their work. My right honorable friend will understand that I would like to get the matter closed up.

Mr. Meighen: That is a very interesting remark, but it is anything but an answer to my question. The question is, when does the minister expect the report?

Mr. Robb: I shall again direct the attention of the commission to the desire of my right honorable friend, and, I believe, of parliament and of the government, to have their work concluded.

Mr. Meighen: There is no expectation at all as to whether it will be down this session or not?

Mr. Robb: I would not like to make any commitments on that.

CHICAGO MARKET SETTLES DOWN FOR THE SUMMER QUIET

Trade Becomes Reconciled to the Fact That Good Business Will Not Be Enjoyed Before Fall—Light Demand for Book and Bonds and Little Change is Seen in Paper Stock—Kraft Betterment is Looked for in About Thirty Days—Kimberly-Clark Distributors Hold Annual Get-Together and Hear Some Edifying Addresses—T. E. Dial on Visit to Several Mills in Central West.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, Ill., June 30, 1924.—With a slight spurt of buying cropping out here and there to relieve the sameness of the market, the Chicago paper industry settles down to the summer quietness. Most members of the trade have satisfied themselves that the hot months' business will not be much different than in former years and they have prepared for it. They feel that fall will usher in a more prosperous period of paper buying and with this outlook ahead there is less of the pessimistic to be heard. As a matter of fact, even though sales are falling far short of the desired mark, salesmen, merchants, jobbers and manufacturers talk optimistic in the hope of preventing worse conditions and improving them if at all possible.

Book and Bonds Have Light Demand

Printers are no more active now than they have been for the past fortnight. Naturally, this situation affects both book papers, bonds and writings. Mills which had orders ahead for from four to eight weeks a short time ago, now report they are almost caught up and are beginning to cast about for new business. It is said that almost any kind of paper can be purchased by merchants at their own price. In other words, concessions are rather numerous. Competition has narrowed down merchants' profits to a very small margin and they are depending upon heavy demand later in the year to make up for losses now.

Kraft Betterment in About Thirty Days

A prominent factor in the coarse paper division of the paper industry in the Windy City is of the opinion, and so expressed it to the representative of the PAPER TRADE JOURNAL, that in about thirty days the coarse paper market will take a turn for the better. It is his firm conviction that this renewed activity will lead into a substantial fall trade which, unlike last year, will be healthy, with enough demand to keep everyone busy. He recalled the trend of the market last year, stating that early in September, after the summer dullness had passed, everybody expected to see business pick right up, and instead it dropped off unexpectedly. He does not believe there will be any such reaction this fall, but that prices will firm up and the market will be stable.

Sees Better Future for Board Market

F. D. Wilson, manager of sales for the central western territory for the Robert Gair Company, of New York, large board and containers manufacturers, sees a much better future for this industry. However, he does not believe it will be in the immediate future, because of the fact that principal consumers of this stock are at present out of the market or taking very light tonnage. By early fall, Mr. Wilson opines, the board industry should be operating at close to 100 per cent of capacity with plenty of business ahead. For the present, mills are not doing very much. During the month of July some will shut down, while just now they are operating at approximately 60 to 75 per cent of normal.

Little Change in Paper Stock

Although there has been little, if any, change in the paper stock market, there seems to be fairly good prospects ahead. Dealers look

for the beginning of fall buying about August 1 and a strengthening tendency. In view of the falling off of stocks on hands in warehouses, it is expected that prices will go higher. It has been said by a reliable authority that paper stocks at the board mills are heavier this year than they have been for more than a decade. Buying of these stocks was heavy because it was the purpose in so doing to maintain as strong a market as possible and keep dealers encouraged so that when business again resumed its normal stride everything would be set. However, there is great expectancy which will undoubtedly develop into a realization of definite orders before long.

Roofing stock has had no change in the past two weeks. Like other branches of the industry, this one is entering into its summer season which likewise has its dullness. Much hope is held out for the fall.

Kimberly-Clark Distributors Meet

Friday, June 20, marked the gathering by the Kimberly-Clark Company of all of its distributors in a huge business session at the Drake Hotel, Chicago. This is the annual get-together of all paper merchants who handle the line of book papers manufactured by the Kimberly-Clark Company, which has its main offices in Chicago and mills at several points in the State of Wisconsin.

In all, there were 35 merchants present, representing about 20 different firms, from New York State on the east, Omaha and Kansas City on the west, Texas on the south and Minneapolis on the north. It was the practice to hold two and three day meetings of this kind, but this year it was confined to just one day, because the merchants do not have the time to devote to a longer session. Everything pertaining to the business end of the meeting was covered in the morning session. General business conditions was the principal topic of discussion. Everybody was optimistic in the face of lessened buying on the part of consumers and all felt that fall would bring in better conditions.

The outstanding feature of the morning gathering was an enlightening talk by F. J. Sensenbrenner, first vice-president of the Kimberly-Clark Company, who is widely known in the paper industry. He gave a detailed survey of business conditions which was so clearly given that his hearers could easily draw conclusions as to what future business will be. He asked the merchants of their cooperation toward the adoption of the recommendations of the Department of Simplified Practices of the Department of Commerce, Washington, D. C., of which William A. Durgin is the head. Mr. Sensenbrenner talked at some length on this subject and received a very favorable response from those present.

At noon, a luncheon was held at the Drake Hotel. The speaker of this occasion was Prof. Dyers, of Vanderbilt University, Nashville, Tenn. Prof. Dyers spoke on applications of citizenship, holding his auditors in a tense attitude for over an hour.

T. E. Dial Visits Western Mills

T. E. Dial, general manager of the Paper Mill Division of the Vacuum Oil Company, is making a trip to various mills in the Central West. Mr. Dial's new headquarters are at 60 Broadway, New York City.

Building Plant at Baltimore

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., July 1, 1924.—A plant which will duplicate the services of the Menasha Printing and Carton Company of Menasha, except the manufacture of paper, is being built by the company at Baltimore, Md., and will be ready for operations in the near future. The plant is being built to serve eastern customers of the company.

About 500 persons will be employed in the new plant but it will not affect in any way the personnel of the organization in Menasha.

The Menasha Printing and Carton Company is one of the largest manufacturers of paper cartons, ice cream buckets and bread wrappers in the country.

DEMAND IN PHILADELPHIA SHOWS DECLINE FOR JUNE

Federal Reserve Bank Statement Says Majority of Paper Manufacturers State Demand Is Fair or Poor—Prices Display Considerable Weakness in the Open Market, Although Few Mills Have Announced Any Price Reduction—Harry Edelson Becomes Member of the Anderson Paper Co.—Pennsylvania Paper Products Co. Adds New Department to Its Plant.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., June 30, 1924.—In its summary of the paper trade market in the Third or Philadelphia District the Federal Reserve Bank in the July report to be issued some time this week says in part:

"A further decline in business is reported by the majority of paper manufacturers, who state that the demand is fair or poor. The orders received by manufacturers thus far in June are smaller than the bookings of the first three weeks in May and, except at toilet paper mills, show a considerable decrease from those of the same period of June, 1923. Consequently production continues to decline and some mills are preparing to close down or have already ceased operations. Book and fine papers are in fair demand, but the request for wrapping papers and tag stocks is poor. Toilet tissues and crêpe towels are selling in greater volume than a year ago, but not so actively as in the three previous months of this year. Wall paper manufacturers are now sending out samples of their fall lines and report that a fair amount of orders is being received. Producers of building papers, building boards, and boxboards find business much slower than it was last June and poorer than it was last month. About the only important grade of paper that is in good demand is newsprint and even on this grade some Canadian mills have recently cut prices. However, this is because of too rapid expansion in the productive capacity of the mills, as the call for news print is fully as heavy as it was a year ago. Paper converters, principally envelope makers, also report a decline in orders and few factories are operating at more than 65 per cent. The majority of paper mills are operating on a hand to mouth basis with only a few days' business on hand and at only 50 or 60 per cent of capacity, but a few have from two to three weeks' orders ahead. In this district, wall paper factories are the only ones operating on full time.

Paper prices display considerable weakness in the open market, although very few mills have announced any price reduction. Contract prices are quite firm and at the few mills where reductions have been made they have not exceeded 5 per cent. Mechanical and chemical pulps show no change in prices, as compared with a month ago.

Finished stocks at the mills vary from light to moderate and are stationary. Supplies of raw materials are moderate. Both skilled and unskilled labor are in plentiful supply and wages are unchanged. Collections are fair and slightly slower than they were last month.

Wholesalers report that sales are smaller than they were in May or in June, 1923. In general, business is barely fair, newsprint being the only important grade of paper that is in good demand. The call for book and fine papers is fair, but not as heavy as it was last month. Cardboards, box cover papers and some grades of wrapping paper are selling slowly, as are most paper boards. Prices in the open market display considerable weakness although most contract prices are firm. Jobbers' stocks are moderate and about the same in size as a month ago. Collections are fair, but a trifle slower than they were last month.

May sales were 3.8 per cent smaller than in April and 12.5 per

cent less than in May, 1923. The ratio of accounts outstanding to sales was 146.0 in May, as compared with 141.2 in April and 133.0 in May, 1923.

Anderson Paper Co. Adds to Officers

The Anderson Paper Company, which specializes in cardboards and cover papers and which recently took over a warehouse and sales office at 430 Race street, has secured the services of Harry Edelson as a member of the firm. Mr. Edelson joined the company on June 7 and an announcement just has been sent to the trade informing it of the change in the personnel. The company has ready for distribution an attractive mahogany cabinet trimmed in brass and containing a complete set of samples of a comprehensive line of cardboards produced by the leading manufacturers of these specialties in the country and handled by the firm.

Arranges for Distribution Expansion

In order to speedily and more efficiently handle the volume of blotting papers distributed to the printing, banking, and stationery trade by Cobaugh-Blottings, of which Clyde B. Cobaugh is head, arrangements have been made by the firm with the Raymond & McNutt Company to have the latter's sales' representatives take orders for the line of blottings handled. The purpose of this arrangement with the Raymond & McNutt Company, which occupies the same building with Cobaugh-Blottings at 825 Walnut street, was to take care of the rapidly increasing business which had grown beyond the single management of Mr. Cobaugh who has been personally calling on the printing trade. In order to take care of the numerous accounts the sales' representatives of the Raymond & McNutt Company have been added to the sales' services although they are not in any other way connected with the Cobaugh concern. The Cobaugh Company carries the Standard Blottings of the Royal Worcester, Super Plate, United States, Sterling, Standard, Bankers' Linen, Curi-Curl and Prismatic brands.

Penna. Paper Products Company Expands

A new spiral wound container department has been added to the plant of the Pennsylvania Paper Products Company, Green Lane and Smicky streets, for the production of a line of spiral cannisters with metal tops used for the packing of cleansers, coffee, groceries and similar products. Heretofore the firm has produced the convolutely wound, metal top cannisters exclusively, manufacturing these in a variety of sizes. The new spiral containers will be made in the same sizes as those of the straight wound. The local plant is under the management of Axel Malm, vice-president.

General Paper Products Company Sold

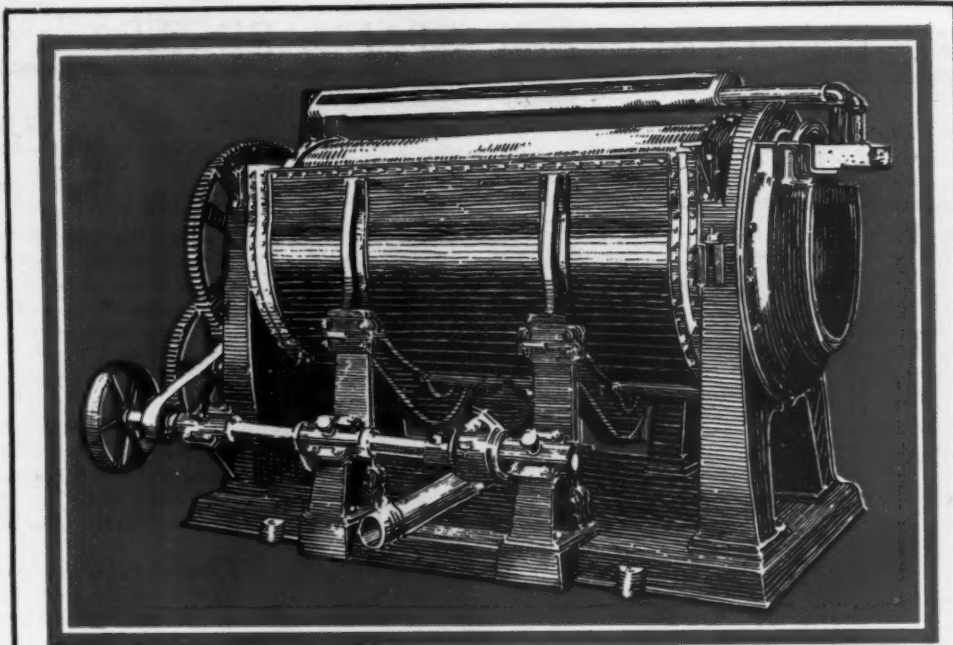
The entire plant of the General Paper Products Company, formerly located at 3422 Lancaster avenue has been disposed of by sale under receivership proceedings brought about by the involuntary bankruptcy petition of the firm. The company was engaged in the production of spiral containers with metal tops. The assets having been disposed of by sale the firm has been dissolved. Its head was George L. Harnley.

News Notes of the Trade

The Philadelphia sales' organization of the Robert Gair Company, in the City Center Building has been increased by the addition of C. C. Emerson who comes to the local organization directly from the New York headquarters and who will feature the firm's folding, corrugated and fiber products and labels distributed here under Manager Charles S. Stocker, recently made Quaker City executive.

Upon his graduation from the University of Pennsylvania last week, Frederick Mann joined the June time wedding ranks when he became the spouse of Miss Henrietta Weber, daughter of David Weber, head of the corrugated paper and container manufacturing concern bearing his name, at 5th and Locust streets. The young couple left for an extended trip to the Pacific Coast where they will

(Continued on page 74)



*14,000 Tons of Paper Pass
Through Bird Screens Daily*

Eloquence

“We believe we have written you the most eloquent letter that could be written to any human being, by sending you an order for three more Bird Screens for our new machine.

“You can talk your blooming head off and have the tongues of men and of angels, but the letter that says—‘*Enclosed find another order for Bird Screens*’ is the most eloquent of all. This is what we have done.”

J. Kindleberger

Kalamazoo Vegetable Parchment Co.

BIRD
MACHINERY

BIRD MACHINE COMPANY
SOUTH WALPOLE MASSACHUSETTS

Western Representatives
T. H. Savery, Jr., 1524 Republic Bldg.
Chicago, Ill.

Canadian Builders of Bird Machinery
Canadian Ingersoll-Rand Co., Ltd.
260 St. James Street, Montreal, Canada

BIRD SCREENS~

CAN BOND PAPERS BE STANDARDIZED?

BY WILLIAM BOND WHEELWRIGHT

On June 5, 1924, the Testing Section of the Government Printing Office issued a tabulation of test results on Commercial Bond and Ledger Papers representing a special investigational work by the Government Printing Office in co-operation with the United Typothetae of America. In the following paper these tables have been rearranged in order to make their significance clearer, and to place the subject of standardization before the public in a way that may be easily understood.

The United States Government purchases its paper on definite specifications. The United Typothetae of America, believing that it would be advantageous for its members to purchase papers on a similar basis, has carried through in co-operation with the Testing Section of the Government Printing Office, valuable and exhaustive analyses of 94 Bond Papers and 39 Ledger Papers submitted by different mills.

Some manufacturers allege that it would be impractical to set up definite standards of quality since the necessary tolerances allowed for normal variations due to the exigencies of paper making are so great.

Nevertheless, a considerable number of manufacturers bid regularly on the Government contracts for papers which have to conform with certain specifications and as a matter of fact the number of rejections under these contracts has been almost negligible. This experience may be considered in relation to the claim that paper specifications are impractical, but whether it would be of advantage to the allied trades of printing and paper if the commercial grades of bond and ledger papers should be made available on a basis of specifications to be agreed upon is another matter.

Grades of Bond Paper Excessive

In an article published by the writer in 1919 which had more or less wide circulation, it was pointed out that the number of different grades of bond paper on the market were excessive, and these grades so closely over-lapped one another as to defy recognition and to confuse the buyer of paper. The advantage of eliminating a certain number of grades so that there would be a difference of quality between the established grades that would be appreciable to the average consumer was suggested. Economic advantages springing from the release of capital tied up in numerous unnecessary brands was referred to as one way of reducing the high cost of distribution and manufacture.

Since that time, several manufacturers have reformed their grades along these lines, but the absence of any general scheme, the situation at large is not greatly improved, and cannot be greatly improved without the acceptance of a program along the lines of the "limitation of armaments." It is due to competition and price cutting that these intermediate grades exist, and while their introduction may have been of temporary advantage to individuals, the continued policy of "dog eat dog" soon over-came such advantages and have left us in the situation so clearly demonstrated by the "Tabulation of Test Results on Commercial Bond and Ledger Papers."

As originally arranged, a good deal of study was required to see the significance of these results, and tables have been rearranged for the convenience of students of the situation, with certain omission of data not essential to the purpose of this paper. So far as composition of the paper is concerned, only the percentage of rag or sulphite is shown, and where the percentage is given of one of these raw materials, the balance of the furnish is of the other; in other words, a paper shown as containing 45 per cent rag would contain 55 per cent sulphite.

The nominal weight of the papers tested was basis 17 x 22-20

but the actual weight of the samples tested is shown, together with the bursting strength, tensile strength, stretch, folding number and tearing number.

Tests Scientifically Carried Out

It should be very clearly borne in mind that these tests are carried out in a scientific manner as outlined below, and that the crude methods of testing generally in vogue are of little value in arriving at safe conclusions. Paper makers will be quite justified in declining to make papers to specifications without the assurance that any testing of the paper so made would be carried out in conformity with scientific principles. The practice as observed in the Government Testing Section is as follows:

All physical tests were made at 70° F. temperature, and 50 per cent relative humidity. All Samples from the same mill had been given a letter or letters which appeared in the percentages after the serial number.

All microscopic determinations of fibre content were made by the "Count" method.

Chemical wood pulp cooked by the sulphite process is reported sulphite.

Chemical wood pulp cooked by the soda process is reported soda.

For tensile strength, stretch, and folding endurance, the terms "machine" and "Across" refer to the direction in which the test strips were cut.

For tearing resistance test, the terms "machine" and "across" refer to the direction in which the paper was torn. Four sheets were torn simultaneously.

Strips for tensile strength, stretch, and folding endurance were cut 15 M. M. in width. (Length for tensile strength and stretch, was 100 mm. between jaws of machine.)

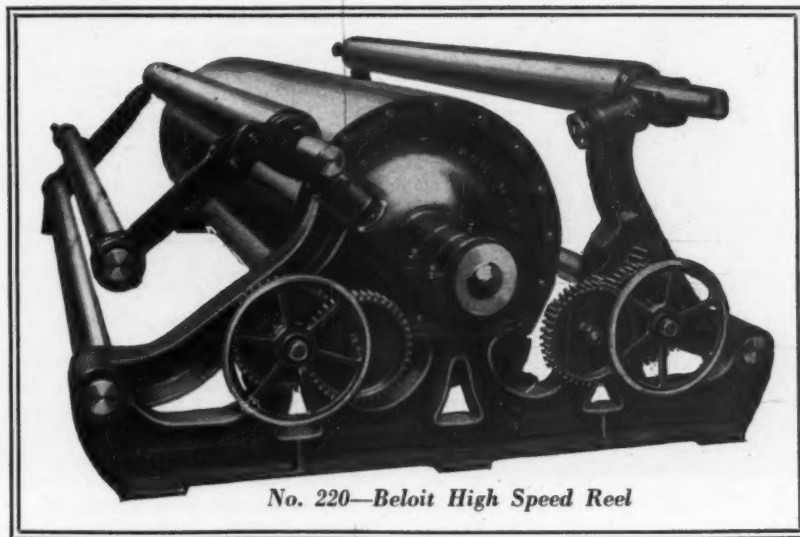
Folding endurance tension used was 1,000 grams.

The tabulation of the test results illustrated the condition that the writer has pointed out before, namely, that the word "standardization" as commonly used in the paper trade has absolutely no significance except as applied to the product of individual mills. There are no definite standards of quality recognized by the paper trade as a whole.

100% SULPHITE BOND PAPERS

Ser. No.	Actual W'ght	Burst-ing St'ght	Tensile		Stretch		Folding		Tearing	
			Mach.	Across	Mach.	Across	Mach.	Across	Mach.	Across
10022(i)	19.8	36.	9.7	4.7	2.	5.1	268	287	51	57
10004(d)	19.5	33.	7.9	4.0	1.6	2.1	163	54	39	52
10035(k)	21.4	34.5	9.9	3.8	2.0	4.4	151	110	45	49
10086(x)	20.3	27.5	8.0	3.4	1.8	2.6	145	41	46	57
10085(w)	20.4	29.5	8.4	3.3	1.8	3.6	118	41	49	59
10013(f)	20.3	31.5	9.1	3.5	2.1	3.7	117	54	42	64
10094(y)	20.3	29.5	8.2	3.7	1.8	3.9	64	39	45	49
10066(q)	18.9	27.5	7.8	3.3	1.5	2.9	53	40	37	48
10011(e)	19.8	25.5	7.2	3.1	1.5	3.6	35	35	33	39
10083(v)	19.5	26.5	7.6	3.6	1.7	2.4	32	18	36	42
10009(ea)	20.8	27.	8.0	3.5	1.6	3.6	20	38	45	41
10005(ea)	21.	28.	8.0	3.3	1.6	3.9	14	29	35	40
10003(c)	18.8	14.5	4.4	2.4	1.1	1.8	12	3	19	25
10032(B)	21.	26.5	7.9	3.3	1.2	2.1	10	15	35	41
10034(v)	19.5	22.	6.7	3.2	1.4	2.7	8	12	30	36
10000(a)	19.8	23.	6.7	3.2	1.3	2.8	7	20	28	28

The above figures show that of 14 different papers all made of 100 per cent sulphite, there is a variation in bursting strength from 14.5 to 36. In tensile strength from 4.4 to 9.9 (strips cut in machine direction), and 2.4 to 4.7 (strips cut across the grain). In folding strength, strips cut with the grain show a variation of from 7 to 265 folds before breaking, and strips cut across the grain from 3 to 287 folds. The variation in tearing strength was 19 to 49 torn in the "machine direction" and 25 to 64 torn across the grain. It is obvious from the above that one must know considerably more than the fiber content of a paper before judging



No. 220—Beloit High Speed Reel

Insure Yourself Against Loss of Paper, Accidents, Inefficiency

THE BELOIT UNIFORM SPEED REEL effects a saving of paper every time you change reel drums. It displaces the old obsolete method, and insures steady, reliable performance plus absolute assurance of economy of operation. Furthermore, it entirely eliminates the danger of drawing men between reels of the conventional upright type, effecting a further saving in man power and accident liability. It can be depended upon to wind a beautiful roll that is very uniform in hardness.

Moreover the extra refinements added to this reel make it much handier than any of similar design. An instance of this is the ease with which paper is started on the drum. The passer does not have to change hands when performing this operation. Its simplicity and ease of operation is a revelation.

Let us know the face of your calender rolls and we will gladly submit a figure covering your particular case.

Beloit Iron Works

Established



Beloit, Wis., U.S.A.

Since 1858

of its quality. The different results in papers made from the same raw material affords a most striking proof of the importance of the human element and the part it plays in paper making.

In Table No. 2 the papers having a rag content of 45 to 55 per cent with the balance sulphite were segregated from the mass and show the following results:

TABLE NO. 2
45-55% RAG CONTENT

Ser. No.	Rag	W'ght	Bursting		Tensile		Stretch		Folding		Tearing	
			Strength									
10141(cc)	55	20.8	45.	9.2	5.3	2.6	5.5	334	305	57	69	
10099(z)	55	20.1	41.	8.6	5.4	2.6	4.5	269	254	56	60	
10073(t)	45	20.9	44.	10.8	4.6	2.5	3.7	259	115	51	58	
10142(cc)	45	20.6	45.	8.8	5.2	2.6	5.2	233	185	58	55	
10027(j)	50	19.4	36.	7.8	4.4	2.6	4.7	196	113	47	55	
10130(ee)	55	20.7	37.5	8.4	4.5	2.9	4.3	189	98	53	55	
10026(j)	45	20.2	39.5	8.9	4.6	2.9	4.8	166	98	48	56	
10131(ee)	45	20.3	38.5	9.3	4.8	2.6	4.3	131	104	50	52	
10028(j)	45	20.5	33.5	8.1	4.7	2.3	4.0	69	67	42	49	
10116(aa)	45	19.8	33.5	7.8	4.2	2.4	3.2	61	64	41	43	
10059(p)	55	18.7	35.	8.3	4.5	2.3	3.6	62	60	40	44	
10070(s)	50	20.	35.5	8.1	4.6	1.9	3.4	52	64	43	51	
10075(u)	50	20.4	30.	7.6	4.0	2.0	3.2	21	19	33	38	
10078(u)	55	20.3	29.5	7.1	3.9	1.9	3.4	10	18	36	37	
10077(u)	45	21.2	34.5	7.3	4.2	2.3	3.7	14	29	39	40	

TABLE NO. 3
Only papers composed of 100 per cent rag stock are shown with the result below:

100% RAG

10110(aa)	19.7	73.5	11.5	8.6	5.0	7.1	2311	2133	69	71
10052(o)	20.	65.	10.4	7.2	3.9	7.2	1910	1938	70	73
10095(z)	22.9	62.5	11.9	8.0	3.5	6.0	1914	2773	101	111
10121(cc)	19.8	59.5	10.9	6.3	4.0	7.1	1577	1306	83	92
10123(cc)	19.6	60.	11.1	5.8	4.4	7.1	1528	1217	75	85
10055(o)	19.9	54.5	10.6	5.4	3.8	6.9	1423	1014	72	78
10111(aa)	20.2	52.	9.8	5.7	4.3	6.4	1245	948	83	83
10054(o)	19.4	49.5	10.2	5.2	3.9	7.6	1159	731	75	77
10051(o)	20.	48.5	9.5	5.5	4.1	6.1	999	588	62	68
10112(aa)	20.	48.	9.7	6.0	3.9	6.2	755	749	60	60
10072(s)	20.8	50.5	9.9	5.8	3.4	4.7	520	365	79	89

As a matter of interest, the following tables have been prepared showing the average test for the five best papers in each of the three classifications as follows:

100% SULPHITE BOND

Bursting strength	31.68	Across	3.85
Tensile strength	8.58	Across	3.56
Stretch	1.85	Across	106.5
Folding	Machine 169	Across	56.2
Tearing	Machine 44.2		

Rag Content, 45 to 55

Bursting strength	42.2	Across	4.98
Tensile strength	Machine 9.1	Across	4.72
Stretch	Machine 2.58	Across	214.4
Folding	Machine 258.2	Across	59.4
Tearing	Machine 53.4		

100% Rag

Bursting strength	64.1	7.18
Tensile strength	11.16	6.9
Stretch	4.56	1873.4
Folding	1848.	86.4
Tearing	79.6	

It has not seemed necessary to work out tables for grades that might be intermediate between 100 per cent sulphite and 45 per cent to 55 per cent rag, or between 45 per cent and 55 per cent rag and 100 per cent rag, but a comparison between the following two papers, one of 25 per cent rag and 75 per cent rag is interesting, and the result should be compared with the averages of the other three tables.

25% Rag

Serial No.	Rag	Bursting	Tensile		Stretch		Folding		Tearing	
10059(p)	25%	35.5	8.6	4.5	2.0	3.5	45	74	38	43
10056(o)	75%	40.5	7.8	4.6	3.2	5.0	205	125	57	58

It is interesting to note that neither of these papers is appreciably better in the light of these tests than the best 100 per cent sulphite paper, although the 75 per cent rag paper shows a somewhat better result than the average of the five better 100 per cent sulphite Bond papers.

The Government Printing Office is content to have standardized on the use of three grades, but for commercial purposes it might be well to add a few others. Does it seem reasonable, for example, to have two grades of sulphite Bond and one rag content

paper graded between the sulphite and the 50 per cent rag, and another between the 50 per cent and 100 per cent rag content? These matters may better be left to the various manufacturers, if any action whatsoever is to be taken. The writer appreciates that many of the manufacturers have very decided views on the subject of standardization, and many honest misgivings about its advantages. The data prepared is not submitted with the wish or precipitating and acrimonious disputes or arguments but in view of the fact that the writer sounded out a number of leading consumers and dealers in paper at the time of the publication of the pamphlet referred to 1919, it might be interesting to conclude with a few quotations from the letters received from those who had read the proposal of limiting the Bond papers to a number of lines that would be sufficiently distinctive to possess a recognizable difference in quality and to eliminate many intermediate overlapping grades.

What Representative Men Think

Fred. W. Gage, ex-treasurer United Typothetæ of America, president of the Gage Printing Company, Ltd., "Your suggestion that there be an established definite standard of Bond paper is one which, to my notion, should receive the careful attention of all concerned."

Arthur D. Little, president, Arthur D. Little, Inc., chemists. "Am wholly in sympathy with your proposal, the adoption of which, would, I believe, be greatly to the advantage of the trade while working no hardship upon the consumer."

Vasco E. Numez, manager of manufacturing, Nashua Gummed and Coated Paper Company, "Your scheme is certainly interesting and has a great deal to recommend it."

Warren C. Brown, editor, *National Lithographer*, "We have been heartily in favor of something of this kind for a long time. It is about time for some standard to be adopted."

Henry S. Dennison, treasurer, Dennison Mfg. Company, "I certainly approve of the direction in which this article shows you to be travelling. The work I had to do in Washington the first part of the war made me appreciate the great waste of surplus styles of goods. . . . The whole program is intensely interesting, and gains still greater significance from the fact that it represents a step in organizing American industries for self-education and self-correction. The principles of self-policing has got to be accepted by American business or else we are in for a heavy amount of Government regulation."

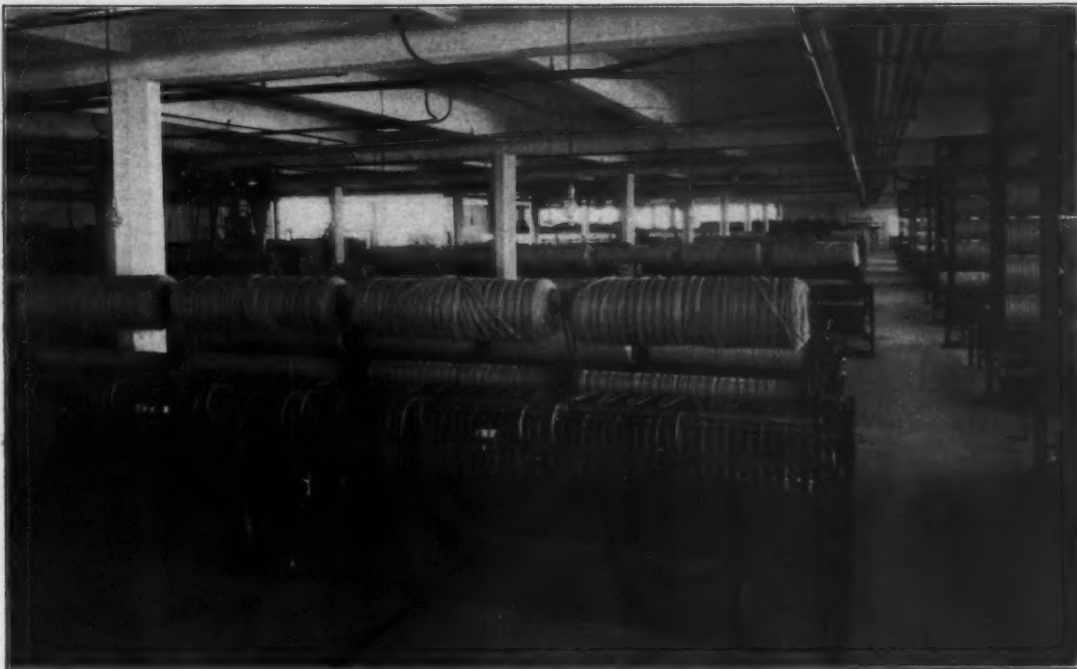
George Olmstead, Chicago representative, S. D. Warren Company (with the J. W. Butler Paper Co. at time of writing). "There can be absolutely no question about the soundness of your judgment, nor the correctness of the principles you set forth. . . . So to answer your question more directly, your proposal is reasonable and righteous altogether."

Oliver G. Bauman, R. H. Thompson Company, Buffalo, "I am very much in accord with your sentiments on the question of standardization and to this effect we had determined some time ago that we would limit our lines to a certain number of grades which we believe will fairly represent us, and have been eliminating since that time all competing grades at various price standards that we have set."

C. H. Dodge, Forbes Lithograph Manufacturing Company, "I have your folder on the national standards for paper . . . and no one can disagree with your conclusions."

Harry L. Gage, Department of Printing (at time of writing), Carnegie Institute of Technology, "Certainly the printer and his customer will both profit by a reduction in the innumerable variety in manufacturing of papers. We have always told our students to welcome any movement which would tend to simplify and standardize papers, inks and even type."

B. E. Hutchinson, treasurer, American Writing Paper Company (at time of writing), "Your position in this matter has my hearty endorsement."



One Section of Our Spinning Room

The Finest of Modern Felt-Making Equipment



Hamilton Felts are marked by two blue lines full width of the felt and one shorter blue line midway between them.

THE resources of the Shuler & Benninghofen, Miami Woolen Mills for the production of fine felts for the paper trade are the finest it is possible to provide. The handsome modern new factory in which a large part of the work is now carried on is equipped with the last word in woolen textile machinery.

Wherever precision was to be gained and the quality of the felts improved no expenditure has been too great. Every resource that modern science and industry provide for fine, accurate work are here assembled.

This exceptional equipment is in the hands of men who have been felt makers for three generations. There is no greater

felt making experience in America—it has resulted in an instinctive judgment regarding methods and materials that is invaluable. But that instinct for felt quality is buttressed and supported on every side by every process of exact measurement and exact control that scientific progress has made available for the felt maker. It is not surprising that Hamilton Felts have so great a reputation for uniform reliability. It was no accident. The inherent quality has been built in by 66 years of painstaking attention to the smallest details of felt making. We go deeper and go further—and the result speaks for itself in the performance of our felts.

Let our service men assist you with your felt problems.

SHULER & BENNINGHOFEN
MIAMI WOOLEN MILLS

Hamilton, Ohio
FOUNDED 1858

Hamilton Felts

New York Trade Jottings

James Quinn, superintendent of the Hinde & Dauch Paper Company of Watertown, N. Y., spent several days last week visiting friends in the trade in this city.

* * *

The Wall Paper Manufacturers' Association and the National Wall Paper Wholesalers' Association will hold their annual convention in New York city on July 15.

* * *

Nathan Tobey, business under the name of The Tobey Paper Company of 317 East 102nd street, has filed a petition in bankruptcy. Liabilities are given as \$10,478 and assets as \$2,781, the main item of the latter being accounts to the value of \$1,823.

* * *

Many friends of R. B. MacMorland, Sales Manager for S. W. Dunning, 150 Nassau street, who has been absent from business for the past three months on account of illness, will be glad to hear that he is slowly improving and hopes to be back to business within the next few weeks.

* * *

J. Warren Wiley, who represents the Smith Tablet Company, Inc., Kilgore Manufacturing Company and Niagara Envelope Manufactory announces the removal of his offices from 225 Fifth avenue to Room 1007 of the Fifth avenue building at 200 Fifth avenue. The telephone is Gramercy 4532.

* * *

M. A. Keslow, who for years has been well known to the printing and allied trades, has resigned as president and secretary of the Riverview Press and is no longer connected with that firm. He is now confined to his home, 941 Argyle Road, Brooklyn, by illness. His future plans have not been announced.

* * *

William Bond Wheelwright, of Boston, sailed on Wednesday of this week for England where he will attend the International Convention of advertising men. Later Mr. Wheelwright will visit the representative paper mills in England and on the continent of Europe, returning to this country about mid August.

* * *

The Continental Paper and Bag Mills Corporation has declared initial dividends of 1½ per cent on the common, 1½ per cent on the preferred and 1¼ per cent on the prior preference stocks, all payable July 21 to stock of record July 12. The company some time ago changed its name from the Continental Paper and Bag Company. The old company paid the same rate of dividends but had no prior preference stock.

* * *

Isaac Levin of The Commonwealth Paper Company of 31 West 17th street, has sent out to the trade the following appeal for patronage of the American paper industry: "As a loyal and patriotic American citizen it is your solemn duty to support and protect the American paper industry by buying American made paper only. Protect the American workingman and the American home. Boost your own business and that of your community by buying paper made only in the U. S. A."

* * *

New financing by International Paper will occasion no surprise says the *Wall Street Journal*. The company is growing rapidly, and its revenues from water power are increasing year by year. In the development of Canadian paper properties, millions of dollars have been spent. Benefits from these large expenditures are now beginning to materialize. International Paper now has outstanding \$6,790,000 first and refunding Series A bonds and \$12,017,000 Series B. Net income available for bond interest last year amounted to \$5,540,000. Interest charges were only \$960,000.

To Represent Paper Mills in Atlanta

ATLANTA, Ga., June 9, 1924.—Recognizing the growing importance of the South as a factor in the paper industry, Mr. Sloan recently severed his connection with the Sloan Paper Company at Atlanta, to enter the sales end of the paper manufacturing business, representing a group of large mills in the Southeast, with Atlanta as his headquarters.

Mr. Sloan's plan of group representation affords paper mills and



S. L. SLOAN

paper products manufacturers who would extend their sales effort in the southern territory an excellent opportunity for close and economical contact with the trade. His headquarters are at 1291 Peachtree street, Atlanta, Ga.

To Collect Box Board Statistics

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, July 2, 1924.—It is understood that the Bureau of Census, Department of Commerce, has made preliminary arrangements to collect statistics in the box board industry.

While details of the matter are not obtainable at this time it is understood that the Bureau will collect figures from members of the Box Board Association and non-members who do not report production, etc., to the association. Letters have been sent out to the industry it is understood by the Bureau requesting co-operation and a preliminary questionnaire has also been forwarded to the box board mills.

Backus Mills Now Running Steadily

[FROM OUR REGULAR CORRESPONDENT.]

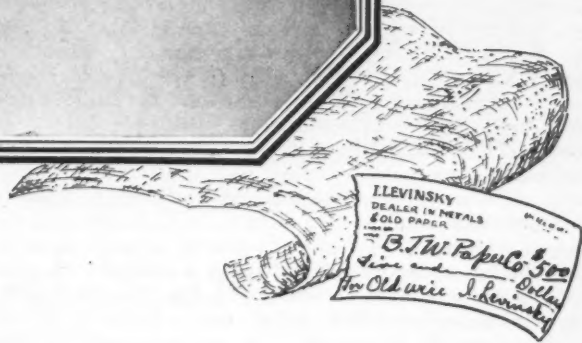
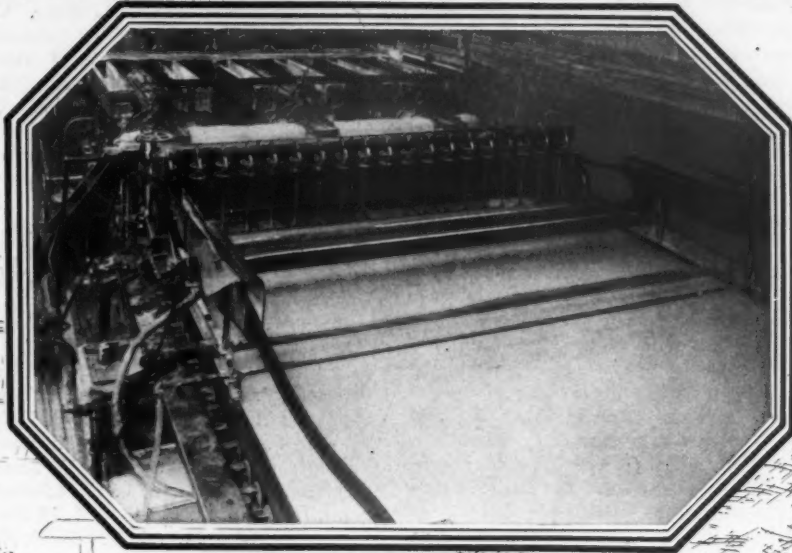
TORONTO, Ont., July 1, 1924.—The new news print mill of the Backus-Brooks Company which was erected at Kenora, Ont., is now running steadily and turning out seventy-five tons of paper daily. The company has spent nearly four million dollars in industrial and power propositions at Kenora and is giving employment to a large number of hands. It is probable that additional power development at the Norman dam will be started this season as the company has the project in contemplation.

Repair Damage Done by Wind

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., July 1, 1924.—Repairs have been completed on the roof of the Peshtigo Paper Company plant which was considerably damaged by a high wind recently.

Get more out of your Fourdrinier wires before they are junked.



Voith Stock Inlets make your Fourdrinier Wires Last Longer

By eliminating all aprons and slices the Voith High Pressure Stock Inlet reduces friction and wear on Fourdrinier wires. This results in a longer life for the wire and a corresponding decrease in wire costs, which is materially worth making.

Feeding the stock directly on to the wire at the breast roll, the Voith Inlet performs all of the functions of the awkward aprons and slices, and by eliminating them not only reduces wear on the wire, but also gives a greater surface for formation purposes and does away with foaming.

A pamphlet giving full information regarding the Voith High Pressure Stock Inlet will be sent on request. Write for it today.

VALLEY IRON WORKS CO.

APPLETON, WISCONSIN

New York Office: 350 Madison Avenue

The Voith Inlet

1. Eliminates all slices and aprons, thus reducing the wear on the wire.
2. Makes a sheet of uniform thickness across the entire width of the machine, through minute adjustments easily made.
3. Makes it possible to speed up the machine materially, thus increasing production.
4. Gives additional space on the wire for formation purposes. The stock travels the entire length of the wire.
5. Eliminates foaming and assures a more perfect formation.
6. Is easily installed and easily operated. It is simple and sturdy.

Obituary

Nathaniel M. Jones

BANGOR, Me., June 28, 1924.—Nathaniel M. Jones, well known because of his connection with the pulp and paper industry and with other enterprises, died Sunday at his home here. After receiving his education Mr. Jones held several business positions. Early in the 80's he purchased a few small lots of land near Howland which resulted in the later development of Howland. In 1890 he promoted a pulp mill there. He was general manager of the plant for three years. He later purchased the abandoned plant of the Lincoln Pulp and Paper Company and rebuilt it as the Katahdin Pulp and Paper Company. At about the same time he built mills at Aux Sable Forks, N. Y.; Lockport, N. Y. and Fort Edward, N. Y. In 1910 he sold his interest in the Katahdin Company and went to the Pacific coast where he spent considerable time investigating sites for pulp and paper mills. He decided, however, that the east offered better opportunities for business and development and so abandoned his western plans. Soon after his return east he formed the Consolidated Pulp and Paper Company, the properties being subsequently transferred to the Edward Partington Pulp and Paper Company which he joined in 1912, assuming general management four years later. This concern was purchased by the Nashwaak Pulp and Paper Company and Mr. Jones was a director and general manager. He retired from active business about two years ago. Many years ago he achieved nationwide prominence by the invention of a concrete lining for digesters in sulphite pulp mills. Another invention of his accomplished the separation of knots from chips which made an enormous saving in the operating expenses of pulp mills. The deceased was 66 years of age and is survived by his widow. He represented Howland in the state legislature in 1895-96 and the Lincoln district in 1897-98. He was a member of Governor Hill's executive council in 1903 and of Governor Cobb's council in 1905-06.

Boston Paper Trade Has Annual Outing

BOSTON, Mass., June 25, 1924.—As usual the Boston Paper Trade Association was welcomed by ideal weather for its annual summer meeting and outing which was held yesterday at the Cliff House and Hatherly Country Club at North Scituate, Mass. The attendance was up to the large numbers which have taken in this annual event in the past, though many of the old time regulars of the association failed to be on the scene. They were missed.

Golf dominated the athletic contests, with Asa Churchill and F. J. Dolbeare, tied for possession of the association championship cup, Mr. Churchill being awarded its possession for the ensuing year on the toss of a coin. The low net score was 70. H. W. Stratton won the guest's prize for low net score with 81 and Paul Poinier took second with net of 82.

The Peanut Golf and the Bowling Green events were won by W. J. McClellan, who also captained the winners of the baseball game, the paper merchants' team. The cigarette and quilt events were won by the Ham family—Arthur E. and son Herbert. The McClellan and Ham combination was a hard one to beat and it was fortunate for the golfers that they had not entered the golf tournament and made a cleanup of these prizes.

The tennis doubles was won by W. W. Binford and W. Edwin Porter. During a short business session the following were elected to membership: W. E. Porter, Jr., and William Ross, of Cook, Vivian & Co.; Paul Poinier, of Poinier Carmer Company; E. S. Barker, of Arnold Roberts Company; E. G. Sullivan, of L. B. Philbrick Company, and R. P. Teele, of the Liberty Paper Company.

The prizes for all contests were of sterling silver and the most valuable ever distributed by the association. The committee in charge of the sporting events were: W. J. McClellan, Norman Harrower, Arthur E. Ham and Herbert Casey.

Among those present were: James D. Heffernan, Albert Donovan, J. M. Robertson, William B. Stevenson, Charles S. Proctor, Norman Harrower, Frank Power, F. B. Tracy, secretary Boston Paper Trade Association; Howard L. Blake, W. J. McClellan, Graham Blandy, W. N. Stetson, Jr., F. H. Blackman, W. J. Vaughn, O. L. Robertson, Frederick Leonard, W. T. Hilton, L. T. Hilton, F. H. Sellars, Harry A. Keef, H. C. Upham, R. P. Teele, F. C. Cate, J. K. Dike, I. C. Young, W. W. Binford, W. Edwin Porter, Jr., F. H. Merrill, E. C. Smith, E. H. Boody, S. W. Hyde, P. D. Poinier, R. W. Daly, Lester H. Thompson, Percy E. Weston, Frank Van Da Linda, W. H. Solomon, Charles A. Burrell, Fred T. Dolbeare, J. E. Swift, H. E. Chase, F. H. Keefe, R. C. Sheldon, E. R. Potter, F. E. Church, W. R. Elliott, A. P. Hay, E. V. Johnson, H. A. Moses, F. B. Cummings, Walter M. Pratt, T. N. Hubbard, R. S. Hubbard, W. C. Graham, E. L. Cummings, Hubert L. Carter, A. E. Pratt, K. B. Fullerton, A. M. Eaton, P. B. Von Olker, G. Stanley Morse, W. L. Muzzy, H. C. Ham, A. E. Ham, Leon H. Young, T. J. Bigley, W. L. Bigley, T. H. Casey, W. J. Dobson, Col. J. P. Jordon, E. F. Russ, A. A. Tanyane of PAPER TRADE JOURNAL, H. Woodward, W. P. Simonds, W. E. Hewitt, H. B. Sargent, J. B. Kelley, C. H. Wood, A. C. Churchill, L. A. Walden, H. A. Lindenberg, T. J. Walsh, J. H. O'Brien, Gilbert H. Gleason, A. H. Gleason, T. K. Dike, S. R. Richardson, R. W. Harris, L. C. Richmond, T. G. Bradlee, L. D. Post, J. L. Munro, W. F. Alford, A. M. Burr, W. H. Furbish, S. C. Burgoyne, H. W. Robbins, L. T. Pike, R. N. Humes, F. O. Johnson, N. S. Clark, E. R. Lyman, and E. D. Bement.

Fish Killed by Explosion at Paper Mill

ATLANTA, Ga., June 27, 1924.—J. E. Dean, president of the Pynettee Paper Company, of Gordon, which operated a paper pulp mill there, Saturday visited the office of Peter S. Twitty, state commissioner of game and fish, to answer complaints filed by residents of Wilkinson county that, as a result of dumping of refuse from the mill into Commissioner creek, millions of fish in that creek and in the Oconee river had been killed.

Mr. Dean explained that the pollution was due to bursting of a tank, and added that the accident was an expensive one to them, which the concern would have avoided had it been possible. Such accidents are apt to occur at any time, he said a similar one having taken place about three years ago. He said he could not promise that it would not happen again, but that his company would do all it could to prevent a recurrence of the affair.

Withdraws Suit Against Eureka Specialties Co.

SCRANTON, Pa., June 27, 1924.—The suit has been withdrawn of the McLaurin-Jones Company, of Brookfield, Mass., against the Eureka Specialties' Printing Company of this city. This suit was entered in the U. S. Court in May, 1923. The McLaurin-Jones Company claimed that the Eureka Specialties' Printing Company had infringed its patent No. 890,570 on the manufacture of gummed paper.

Superintendent's Secretary at Miamisburg

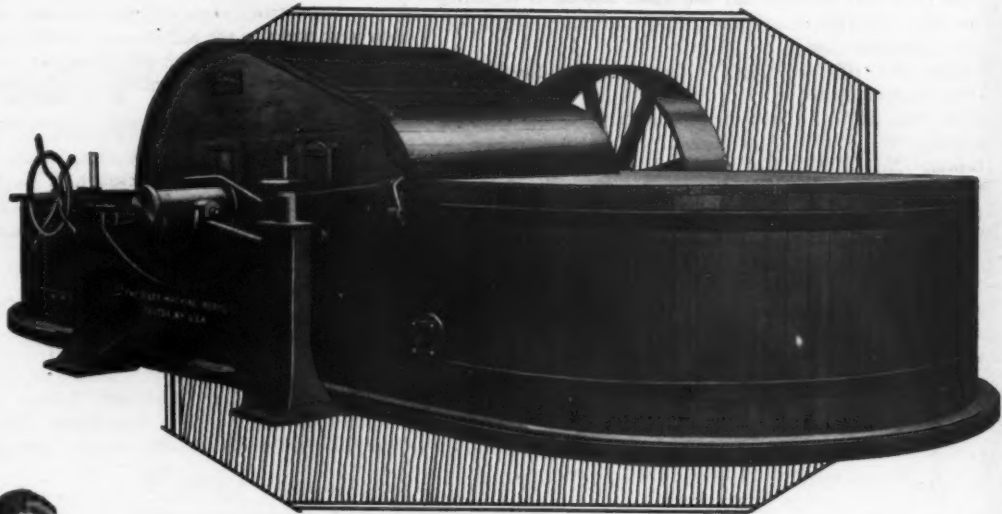
[FROM OUR REGULAR CORRESPONDENT]

MIAMISBURG, Ohio, July 1, 1924.—R. L. Eminger, the newly elected secretary of the American Pulp and Paper Mill Superintendents' Association, has opened his office at 56 North Main street, Miamisburg, Ohio, where all communication pertaining to association matters should be addressed.

Karl M. Smith Cordage Co. Opens at Dallas

DALLAS, Tex., June 30, 1924.—The Karl M. Smith Cordage Company has opened a wholesale paper cordage and twine business at 1712 Carter Street here. Karl M. Smith, head of the new concern has been in the paper and cordage business in Texas for the past twelve years.

Dilts



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is a race half won**

Beating—the first step in the actual making of paper—largely determines the quality and value of the final product.

A good start, then, in your Beater Department is of utmost importance in your daily race with competition.

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is made
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Trade-Marks Department

CONDUCTED BY NATIONAL TRADE-MARK CO., WASHINGTON, D. C.

The following are trade-mark applications pertinent to the paper field pending in the United States Patent Office, which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists. As an additional service feature to its readers, PAPER TRADE JOURNAL gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering.

BUCKSKIN.—No. 189,446. Capital Paper Company, Indianapolis, Ind. For wrapping paper.

RAP-RITE.—No. 190,574. Capital Paper Company, Indianapolis, Ind. For wrapping paper.

KATRIN.—No. 190,673. Capital Paper Company. Same as above.

SEALSKIN.—No. 190,670. Same above.

NATIONAL.—No. 192,993. National Stationery Company, Batavia, Ill. For stationery, namely, wrapping paper.

PICKQUICK PAPERS.—No. 193,609. Otto W. Mielke, Portland, Ore. For wrapping paper, napkins, towels, waxed paper, toilet paper, shelf paper, etc.

DRUM HEAD UNION.—No. 194,680. Union Bag and Paper Mills Corporation, New York City. For wrapping paper.

MONOGRAM UNION.—No. 194,681. Union Bag and Paper Mills Corporation, New York City. For wrapping paper.

OLD SOUTH.—No. 194,920. Hampshire Paper Company, South Hadley Falls, Mass. For announcements, business stationery, social stationery and mailing envelopes.

PIC-NIC-PAK.—No. 195,221. Daniels Manufacturing Company, Rhinelander, Wis. For paper napkins and table covers.

Foldwell Distributors Visit Allied Paper Mills

KALAMAZOO, Mich., June 28, 1924.—Foldwellers from four cities—Chicago, Detroit, Indianapolis, and Toledo, Ohio—were in Kalamazoo, Thursday and Friday, guests of the Allied Paper Mills, manufacturers of Foldwell Enamel for the Chicago Paper Company. Those attending the two-day meeting here are winners of an annual quota contest staged by the Chicago Paper Company, and represent men who have disposed of large quantities of Foldwell Enamel.

Arriving in Kalamazoo Thursday afternoon, the visitors were taken by motor to Gull Lake where a dinner was served for 75 guests at seven o'clock at Turner's Resort. Following the dinner, Alex G. Gilman, president of the Allied Paper Mills, acted as toastmaster and introduced the program for the evening, and in that connection explained numerous improvements to the Allied properties and their bearing on the new Foldwell which has won from its users the title of "the standard of comparison."

W. N. Gillett, vice-president of the Chicago Paper Company, gave a pointed talk on the national scope of Foldwell distribution, paying high tribute to the Kalamazoo mills for their part in making this distribution possible by turning out the best sheet of folding enamel on the market.

Arthur Stevens, treasurer of the Choep-Stevens Paper Company of Detroit, Foldwell and Allied distributors as well, spoke on the distributor's attitude toward Foldwell. Mr. Stevens in his remarks praised not only the quality of Allied Dependable papers but the service behind these papers.

George H. Gerpheide, vice-president of the Allied mills gave an interesting technical talk on the raw materials going into Foldwell, following which A. R. MacDonald of the mill's sales promotional department spoke on his impressions of the mill, its equipment and personnel and the importance of the personnel in particular to the dependable grades of paper being produced under both the Allied and Chicago Paper Company brands.

Among the sales' contest winners heard from were: C. J. Gregory and James Cant of the Choep-Stevens Paper Company, E. A. Merchert and J. G. Rowley of the Chicago Paper Company, after which W. K. Lamport of the Lamport-MacDonald Company, advertising counsellors for the Allied Paper Mills and the Chicago Paper Com-

pany, talked on Foldwell advertising over the past several years. J. W. Powell, sales manager of the Allied Paper Mills gave a short talk on the importance of the mill brand and on the facilities of the Allied properties to care for tonnage and special order requirements. James M. Smith, manager of advertising for the Chicago Paper Company, gave an interesting talk on forthcoming Foldwell advertising.

Today, Allied's guests were conducted through the King and Monarch properties where different processes were explained, and at noon were taken to the Kalamazoo Country Club for luncheon, following which everyone with two arms with which to swing a club was drafted into a golf tournament for which several prizes were arranged.

Among the visitors were: From Chicago, J. W. Knox, J. L. Smith, W. N. Gillett, L. Middleton, C. Rasmussen, J. Northcott, O. C. Bock, F. H. Foster, E. A. Melchert, J. G. Rowley, H. E. Fick, C. J. Wright, W. A. Nuess, C. H. Krause; from Detroit, C. J. Gregory, James Cant, Arthur Stevens, Frank Keogh; from Indianapolis, H. M. Nicodemus; from South Bend, W. K. Lamport, A. R. MacDonald, Carl F. Prell; from Toledo, J. T. Dyer, W. H. Townsend, R. E. Curtin, E. H. Klinck, Morgan Levi.

Recent Incorporations

THE CONNECTICUT PAPER BOX COMPANY, INC., Bridgeport, Connecticut. Authorized capital \$50,000. To begin manufacturing boxes and paper goods of all kinds with \$5,000. Incorporators: John M. Dunn, Bridgeport; George P. Jameson, Bridgeport; Hetty E. Lees, Fairfield.

SEMINOLE PULP AND PAPER CORPORATION, Palatka, Putnam County, Florida. Capital stock \$200,000; 8 per cent cumulative preferred; \$300,000 common existence perpetual; limit of indebtedness \$1,000,000; manufacture and sale of paper and paper products, and all other commodities; officers J. J. Fort, president; H. L. Anderson, vice-president; C. Wysong, secretary and treasurer.

Rushing Work on Paper Mill at Bastrop

BASTROP, La., June 27, 1924.—Construction work is in full swing on the \$400,000 new paper mill here. Concrete foundations for the immense buildings that will house the machinery are being prepared. Much interest has been attracted here by a steel tower 150 feet in height which has been erected on the site of the plant for hoisting concrete to be used in the construction work. Parsons & Parsons of Monroe have charge of the concrete construction. Railroad sidings are being built and steel is being shipped in every day to be used in the construction of this plant.

Tuberculosis Society to Collect Waste Paper

[FROM OUR REGULAR CORRESPONDENT.]

LANSING, Mich., June 28, 1924.—The systematic collection and sale of old papers as a means of securing a steady income for perpetuation of its work has been adopted by the Ingham County Tuberculosis Society. An organization has been perfected to carry on the work, people of Lansing being asked to donate waste papers and magazines. Collections are to be made regularly and supplies thus secured will be sold to Michigan mills, users of immense quantities of old papers.

McArthur Tries to Get New Limits

An effort is being made by J. D. McArthur, who is proposing to build a paper mill at St. Boniface, Manitoba, to obtain certain changes in pulpwood limits that he holds from the Ottawa Government. He is anxious to have some of his present limits exchanged for new limits on exchange basis, but the Department insists upon advertising the new limits for sale in the ordinary way and letting Mr. McArthur take his chances along with the rest. He was accompanied on his visit to Ottawa by George Siemans, the Chicago capitalist.

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Regular shipments of large tonnage enable us to give SERVICE in all grades and if you contemplate buying Bleached or Unbleached Sulphite, Kraft or Ground Wood, we can make favorable offers for prompt or contract shipment.

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E d i t o r i a l

Vol. LXXIX New York, July 3, 1924 No. 1

HENRY J. BERGER, Editor

INDUSTRY AT LOWER LEVEL THAN LAST YEAR

The continued decline of industrial production has now assumed the proportions of a fairly general readjustment, according to a survey of business conditions just concluded by the Guaranty Trust Company of New York. Average commodity prices for the last few weeks have been more nearly stable, but interest rates have receded and wage reactions and unemployment have become more pronounced, although unemployment as a whole is probably not much greater than is usual at this season. Industry in general is proceeding at levels materially lower than those of a year ago.

Conditions in the money market have commanded particular attention during the last month and its probable future course is a matter of outstanding interest in the current business situation. Interest rates, in fact, are lower and money is more plentiful than at any time since the pre-war period.

Various factors have operated in producing this situation, the most important being the continued flow of gold imports and the increase in banking reserves. The spring and summer reaction, and in some lines positive depression, which have characterized general business and reduced the demand for loanable funds, have also influenced money rates. There has, in fact, been no such expansion of bank loans in the first half of this year as was witnessed in the corresponding period last year.

Another important element in the situation is the fact that easy money and a good security market have made it possible for many concerns successfully to float bond and stock issues, thus relieving their banks. During the fiscal year just closing the Federal Government has also been able to reduce its interest-bearing debt nearly \$1,000,000,000.

A general impression seems to prevail that rates will continue low until the seasonal demands of the fall and the final disposition of the political campaign give business a new impetus and expand the use of loanable funds. The foreign situation may also affect this market materially. Further progress towards the acceptance and operation of the Dawes' plan is expected to stimulate business activities and investment opportunities abroad which will attract American funds, especially with moneys commanding higher rates there than here. Money and banking conditions on the whole provide a fundamental safeguard for general business and constitute one of the strongest influences toward stabilization.

Accumulations of disproportionate stocks of goods are probably more general than is supposed. While distributors as a whole have followed a conservative buying policy, this has entailed in many cases the carrying of unduly large inventories by manufacturers. In April, for example, an index of stocks of 45 commodities compiled by the Department of Commerce stood at 136 (1919 = 100), as compared with 117 in April of last year. That production has been curtailed to conform more closely to current rates of consumption is, however, one of the most wholesome factors in the present situation.

The sharp decline in the production of iron and steel extended into June, but recent reports indicate that it has been retarded, and that buying, especially of pig iron, has shown some improvement.

It will be noted that during the last few months shipments of automobiles have been relatively much higher than production. Since the first of June further curtailment has been made in production schedules. Despite the marked decline in the last two months, however, the output in the first half of 1924 will nearly, if not entirely, equal that of the corresponding period last year. This condition is not exceptional. An actually high level of production, when comparison is made with any but peak periods, is characteristic of most other industries.

The enactment of the new revenue measure, the result of various compromises, was the outstanding legislative achievement of the recent session of Congress. Confronted by the imperative need for tax revision, the President reluctantly accepted the bill, frankly admitting its defects, but expressing the hope that Congress in its next session may eliminate the objectionable features and pass a tax measure "less political and more truly economic."

The most that can be said for the new law is that it brings immediate reduction of taxes, relief which could have been greater, however, except for the granting of a bonus to the ex-service men. The public demand for tax reduction has been insistent, as was evidenced especially by the popular response to Secretary Mellon's plan for effecting both a reduction in the aggregate of taxes and a more intelligent and equitable distribution. This demand has abundant justification.

The American people paid Federal, State and local taxes in 1922 totaling \$7,433,081,000, a sum equivalent to about one-eighth of the estimated total national income, representing an average of \$68.37 per capita, and an increase of 127 per cent in five years. Federal taxes now constitute about 40 per cent of the total, as compared with 30 per cent just before the war. Since out of the total population of 110 million only approximately 7 million pay Federal income taxes, the average share for each taxpayer is heavy. It is estimated that the various taxes combined represent, in round figures, \$200 a year for each worker, or \$300 a year for each family.

The spread of taxes in the increased cost of living to every consumer adds a heavy burden to all, frequently disproportionately heavy for those who pay no direct taxes. Indeed, the soundest appeal by the Administration for the passage of a scientific tax measure was to protect those who pay no direct tax but bear the greater share of high living costs and feel most keenly the restraint placed upon industry and enterprise by unscientific and inequitable taxation.

The new law provides for a reduction of 25 per cent in the taxes on 1923 personal incomes. This uniform reduction for taxable incomes of every size does not affect any relative disparities in the rates.

But it is not enough merely to reduce taxes regardless of the manner in which the remaining obligation is shared. What the Administration and the country desired was genuine economy in the expenditure of the people's money by the Government, with taxes correspondingly lowered, but, at the same time, so co-

ordinated as to represent the least possible handicap in the promotion of the common welfare. The compromise law represents no real economy in public expenditures.

The clearly established fact that the present high surtaxes have crossed the line of diminishing return was utterly ignored by Congress, and the measure was shaped, in opposition to the wishes of the President and the Secretary of the Treasury for an equitable law, in an effort to accomplish the political end of imposing the maximum of taxes upon the minimum of voters. That this will not be its real effect will eventually appear.

Unsatisfactory as is the new law in many of its features, there is advantage in the fact that it does make definite for a time at least what taxes are to be borne. Perhaps those administrative features which prove harmful will be eliminated, but it is scarcely probable that the rates themselves will be revised until their effectiveness in producing revenue has been actually tested.

Fires Damage Pulp and Paper Mills

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., July 1, 1924.—One man was killed and a pulp mill that would cost between \$75,000 and \$100,000 to replace, was destroyed in a fire in the Anson & Eldred Company property at Stiles, near Marinette, last week. The company intends to rebuild the destroyed property but it is not certain whether another pulp mill is to be constructed or whether a power house will be built.

The Anson & Eldred Company pulpmill was built about a dozen years ago and had a capacity of from seven to ten tons of pulp a day. The plant formerly was a sawmill. Insurance totaling \$20,000 was carried on the property.

The place was discovered about 2:30 in the morning by an operator of a grinder who immediately put in an alarm. Ole Olson, a millwright, went into the plant to save his tool chest and was trapped by the flames. His charred body was discovered in the ruins.

A planing mill and other property owned by the Anson & Eldred Company also was destroyed, making a total loss of close to \$100,000.

Damage aggregating about \$4,000 was caused in the stock room of the Neenah mill of the Kimberly-Clark Company by a fire believed to have been caused by spontaneous combustion. The blaze was discovered in a pile of waste paper and was promptly checked by the mill's sprinkler system. Most of the loss was confined to finished paper.

Early Decision on Wrapping Imports

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., July 2, 1924.—The matter of importations into the United States of large quantities of wrapping paper, which domestic manufacturers are anxious to have classified as imitation parchment paper, will be decided within the next two or three weeks by experts of the Custom Service, Treasury Department.

Sometime ago domestic paper manufacturers protested to the Custom Service that large quantities of wrapping paper are coming into the United States at a duty of 30 per cent ad valorem under paragraph 1309 of the Tariff Act. They contended that this paper should be classified at 3 cents per pound and 15 per cent ad valorem, under paragraph 1305, as imitation parchment paper.

Hearings were held in New York at which both the domestic manufacturers and importers were heard. The whole record has now come to Washington where it is being reviewed by officials here. It is expected that a decision will be rendered in the next two or three weeks which will be submitted to the Secretary for his approval.

Foreign Paper Importers and Dealers

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., July 2, 1924.—The Commercial Intelligence Division of the Department of Commerce has just announced a series of Trade Lists of interest to exporters of paper and paper products. These lists contain the names of importers and dealers of paper in foreign countries and may be had without charge from any of the district or cooperative offices of the Bureau of Foreign and Domestic Commerce or from Washington.

Supplementing periodic compilation of Trade Lists for all branches of American industry, the division is equipped to furnish sales information on more than 100,000 foreign firms and individuals with which Americans do business. As this list contains much detailed data on foreign dealers in paper and paper products, American exporters of this commodity are invited to use the service.

IMPORTERS AND DEALERS.

Bolivia	LA 11019—B
Brazil	LA 12038—A
Chile	LA 13007—B
China	FE 13020—B
Costa Rica	LA 23018—A
Egypt	NE 14044
Greece	NE 5033
Panama	LA 28017—A
Peru	LA 20035
Venezuela	LA 22014—A

PAPER MILLS.

Argentina	LA 10114
Brazil	LA 12092
China	FE 13079
Mexico	LA 30093
Uruguay	LA 21027
Venezuela	LA 22028

Trade lists should be ordered by titled and file number.

To Help Fight Foreign Invasion

The foreign situation as it affects the Paper and Pulp Industry of the United States was thoroughly threshed out at a meeting of representatives of manufacturers of allied lines, held at the Waldorf Astoria, New York, yesterday.

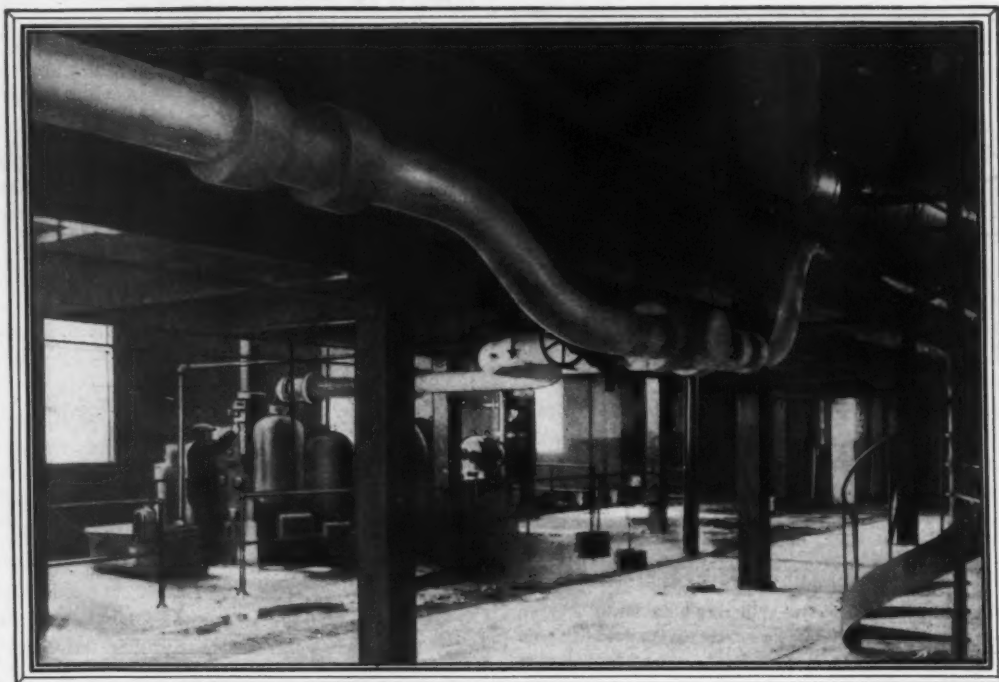
Over forty representatives of manufacturers of mill equipment, chemicals, wires, etc., met for the purpose of forming an allied association to the American Paper and Pulp Association, to assist in affording further protection against the invasion of foreign-made products which has not only affected domestic paper and pulp manufacturers but the manufacturers of many lines of equipment.

After considerable discussion it was agreed that some measures of co-operation should be adopted which would aid in bringing about the desired result. The opinion prevailed that an association of allied interests should be formed, composed of supply and equipment manufacturers, and the following were appointed a committee to draft plans and by-laws which will be acted upon at a future meeting: C. H. Neaby of Eastwood Wire Manufacturing Company, J. A. Cameron of the Cameron Machine Company, C. H. Kent of Papermakers' Chemical Company, W. W. Cronkrite of General Electric Company, W. Cabbie of Cable Excelsior Wire Manufacturing Company, W. H. Neese of Beloit Iron Works, P. Dennett of Bird Machine Company and W. N. Wilkinson of Union Sulphur Company.

Plant Starts After Shut-down

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., July 1, 1924.—The Hoskin-Morainville Paper Company plant in Menominee, Mich., closed for about ten days, has resumed operations. About 85 people are employed in the plant.



THE MAIN STEAM LINE TO THE TURBINE-CRANE PIPING-IN THE PROVINCIAL PAPER MILLS, LTD., PLANT AT PORT ARTHUR, ONTARIO

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Section of the

Technical Association of the Pulp and Paper Industry



AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.



Conducted by W.G. MacNAUGHTON, Secretary

COLLOID STUDIES IN ROSIN SIZING*

By DR. R. LORENZ

(Concluded from last week)

30. FLOCCULATION IN THE BEATER.

I. Flocculation Effects of Impurities in the Water.

In Section 26, it was mentioned that beater water with a large salt content can effect an undesired coagulation of the rosin suspension. The following investigation should give an idea of the magnitude of this influence for the salts which are concerned.

The water used in paper manufacturing in many operations is treated, before it reaches the beater, with the necessary aluminum sulphate solution¹ to destroy the carbonate and bicarbonate. But bicarbonates again arrive in the mass with the size milk, since in the size cooking with soda, a part of the freed carbonic acid is held retained. From the opinion of many manufacturers, a certain bicarbonate content is even desirable and is given consideration in the cooking. The previous treatment of the water with $Al_2(SO_4)_3$ cannot have as a single object the removal of the HCO_3^- ions from the system but it succeeds in removing the greatest possible amount of Ca^{++} ions as $CaSO_4$. Near lies the thought, that the $Al_2(SO_4)_3$ treatment fulfills the task of clearing the water of suspended impurities which would produce dirty spots in the paper, by adsorption of the suspended material on the precipitating colloids (aluminum hydrate containing more or less SO_4).

As a result of the treatment described, the beater water may often be saturated with gypsum, and it is, naturally, if gypsum (satin-white, brilliant white, etc.) is added as a filler. As is shown by Table IX, row 10, a half saturated gypsum solution produces strong flocculation, such a solution having about 1 g. of the dry salt per liter or a concentration of only about 15 mil. equivalents; only a quarter saturated $CaSO_4$ solution seems to act no longer on the colloid phase. The gypsum content of the beater water is, accordingly, a main reason of the previously mentioned coagulation of the colophony suspension.

Next to gypsum, untreated water contains mostly alkali chlorides and sulphates as well as magnesium salts. The effect of the latter has been shown in Table IX, (row 2 and 6) likewise for KCl and K_2SO_4 (row 1 and 5). Investigations with NaCl (row 13) broadly agree with KCl. Especially the minimum of flocculation intensity observed at about 250 millimols is here found at 200 millimols. In spite of its high flocculating point, NaCl may be a considerable influence on account of its commensurable high concentration in natural water.

Na_2SO_4 agrees with K_2SO_4 in flocculation value discussed above (row 5 and 14). Since it appears besides from the neutralization of the size milk, in large quantities, it is to be supposed that it takes part in the flocculation.

R. Sieber's² determination is interesting—that by the action of several electrolytes on the suspension, the combined effect is less than the total of each single action. Still he submits, "hard water can cause flocculation, without the amount of each individual hard salt oversteps its beginning (of flocculation) value, a detriment to many mills." High free rosin content aggravates the decomposition of the size, but makes it more stable to flocculation by hard salts.

II. Flocculation and Peptization by Impurities of the Rosin Size.

As mentioned, carbonic acid reaches the size milk from the size and the air. In order to investigate its influence on the stability of the colloid phase, 100 cc. of boiled distilled water was placed in two well cleaned seltzer-water bottles. A piece of carbonic acid snow as large as a hazel nut was added to one flask, and by shaking the stoppered flask, was brought into solution. Then in both flasks, with absolutely the same manipulation, equal volumes of a 1 per cent alcoholic colophony solution was added. The flasks were then closed and shaken. After filtering 100 cc. of the sols with titrated alcoholic NaOH. The CO_2 free sol had about double the concentration (of the other), evidence of the flocculating effect of carbonic acid.

C. Wurster had something different in mind when he wrote: "There is no doubt that it is carbonic acid which precipitates rosin in the milky state."

If CO_2 is introduced into a concentrated sodium abietate solution, it changes within a few minutes into a white milk in which colloidal rosin acid is present. Accordingly, while carbonic acid is displaced in heating—as with the size cooking—where it is driven away from the abietic acid on account of its great volatility, it changes at usual temperatures, as the investigation shows, the molecularly dispersed rosin soap solution to abietic acid. However, this reaction hardly needs consideration at the great dilution in the beater.

The brands of size other than rosin and sodium resinate lately coming into commerce include mixtures of absolutely different materials as casein, albumin, animal size, starch, dextrin, tannin, gluten, viscose, rubber latex, etc. By additions of such suitable colloids, a protection against undesirable flocculation is obtained, to lead, on the whole, the dispersoid reactions in the beater in the desired manner. By some investigations, this interesting technical employ-

*Papier-Fabrikant 1923. Translated by Burton L. Kassig, Hammermill Fellow at University of Syracuse.

¹ Neugebauer: Papier Fabrikant, 1912, 1308.

² Loc. cit. 1921, 18.

ment of other colloid systems has been explained. By this will be shown that completely opposing actions are brought out with the least difference in the manner of work.

(a.) Casein is soluble in distilled water only in very small traces. In spite of this a few drops of the saturated solution suffice to protect abietic acid hydrosol quite completely, against electrolytic flocculation. Even after 8 days with the use of 500 millimols of $Al_2(SO_4)_3$ as coagulator, there was no perceptible change in the sol, while a comparative investigation without casein, showed flocculation in $4\frac{1}{2}$ hours.

(b.) Casein easily dissolves in alkali as is well known, partly colloidal partly in molecular form $n/100$ NaOH was saturated with casein and a small drop added to the sol. With addition of 500 millimols $Al_2(SO_4)_3$ the rosin suspension flocculated instantly.

The disagreement between (a) and (b) was cleared up by the following investigation.

(c.) If sodium casein solution is added to $Al_2(SO_4)_3$ solution, the casein falls out, since it is insoluble in the acid reacting liquid, relative to the peptization medium the OH^- ions are removed by the H^+ ions. The same happens in the case of Investigation (b) if $Al_2(SO_4)_3$ is added to the sodium casein solution. Here the precipitating casein carries down the colloidal rosin phase.

(d.) If $n/1$ $Al_2(SO_4)_3$ is added to a drop of sodium casein solution so that the casein flocculates and then adds the suspension to the sol, the results of investigation (a) are obtained; 24 hour stability against the strong electrolyte containing sol.

Casein acts as a strong stabilizer in the smallest concentration in which is soluble in H_2O (a.) or even in dilute acid (b.).

To the contrary the conditions of the investigation show that even casein precipitates out instantly, as in the sizing beater, in which the alkaline solution takes on an acid reaction by the H_2SO_4 of the $Al_2(SO_4)_3$; thus it acts strongly flocculating. Accordingly, it is clear that with a certain casein content of the size, considerable of the flocculator can be saved.

In a sense of the theories developed abietic acid hydrosol with sodium casein may not be flocculated by KCl, K_2SO_4 and other neutral salts. Investigation with electrolytes up to $\frac{1}{2}$ saturation justified these suppositions. Only Mg salts caused partial flocculation, since the Mg^{++} ion reacted with the OH^- ions from the sodium-casein, precipitating $Mg(OH)_2$ and by removal of the peptizing OH^- ions, broke the stability of the colloidal casein, and also carried down the rosin.

The regularity studied with a pure sol holds true for size milk considered on a shorter period of time.

A retardation of flocculation in the sol was observed after addition of a few drops of potato starch paste. After 3 days complete flocculation was still to be reached with 500 millimols $Al_2(SO_4)_3$. Rapid clarification was obtained by the subsequent addition of a small drop of sodium casein solution.

Considerably stronger protective colloid effect developed by the addition of animal size. Some drops of gelatin solution stabilized so much that the highest aluminum salt concentration flocculated neither sol nor size milk. If sodium casein was added, the size milk gradually flocculated. The precipitating casein overcomes even the protective action of the gelatine by carrying down the colloidal rosin phase.

In order to investigate if a facilitation of the colloid condition of the free rosin was obtained by the addition of colloidal substances in the size cooking the following series of investigation was carried out.

In a series of small flasks, 100 cc. of the solutions listed in Table XII was added. The solutions were then mixed with 1 per cent alcoholic abietic acid solution added drop by drop until the greater part fell out in coarse flakes. The solutions were then cautiously heated in a porcelain dish until the alcohol was driven off, filtered and 10 cc. of the filtrate was titrated with $n/10$ NaOH (alcoholic) against phenolphthalein. In Table XII the determined free rosin content is listed in terms of cc. of the liquor consumed and in

percentage referred to of the total volume. From this it is emphasized, that casein does not increase the peptizing effect of alkali in the size cooking, but animal size without alkali addition peptizes about as strongly as NaOH.

It is still conceivable that colloidal admixtures to rosin size act more favorably, that similar to the mordanting in cotton industry, a bridge is formed between the fibers and the dyes, these colloids mediate between the fibers and rosin and for this reason make possible the fixing of the size more firmly and in greater amount. This action, for casein and tannin, was made apparent by the following investigation. A sheet of soft filter paper was placed in size milk for 15 minutes. In one vessel, there was no admixture, in the second was a few cc. sodium casein, and in the third, tannin solution. The sheets were washed with distilled water and dried by swinging over a flame, pulled apart and extracted with CH_2Cl_2 for $\frac{1}{2}$ hour under a reflux condenser. The chloroform solutions were made up to equal volumes and a drop of acetic anhydride and an equal amount of conc. H_2SO_4 was added and the whole shaken thoroughly and the well-known purple color appeared. In the extraction solution of the paper sized with addition of casein or tannin the color was much more intense than that from the paper sized with pure rosin.

III. Technical Flocculating Agents.

After the pulp and size milk have been thoroughly mixed by mechanical action in the beater, the flocculating agent is added.

The action of $Al_2(SO_4)_3$ has been taken up in Section 27 and 29.

Alum, $KAl(SO_4)_2$, which is now prepared from aluminum sulphate is not greatly used, although it may be used in the production of the finest papers in small amounts, where accurate quantitative relationship of the ingredients require a well crystallized salt.

A series of flocculations with alum gave complete agreement with the aluminum sulphate series (Compare Columns 10 and 7, Table IX).

The industry has been troubled to discover a cheap flocculating agent. $MgSO_4$ seems suitable, according to the equation:



it uses up the alkali, thereby assisting, similar to $Al_2(SO_4)_3$ the hydrolysis of the rosin soap solution and gradually removes the peptizer of the rosin suspension. From Table IX, column 6, we know, that it causes flocculation proportionally well.

Also $NaHSO_4$ was recommended. This is a cheap by-product of old fashioned nitric manufacture. Finally the replacement of alum with dilute H_2SO_4 was investigated. $NaHSO_4$ and H_2SO_4 (column 11 and 12) show low flocculating value.

Why no permanent sizing was to be attained with all these substitutes will be clear when we have learned the important task of the colloidal $Al(OH)_3$. This is taken up in the last part of the work. Besides this chief defect, technical difficulties prevent the use of the substitutes named. In the case of the formulated decomposition of the $MgSO_4$ with the size milk, the paper stock does not become acid but, at most, is neutral or remains quite alkaline. Such stock "foams, sticks and would not carry over the paper machine."²¹ In the case of the strongly acid flocculating agents $NaHSO_4$ and H_2SO_4 , is the consideration of the sensitiveness of cellulose toward acid if it "dries in the material"²²; weakening of the fibers by hydrocellulose formation is to be feared. The acid here acts for a time, at full strength, contrarily, in the case of aluminum sulphate, it acts gradually with the progressing hydrolysis.

Stöckigt and Klingers work serves to emphasize the combined flocculation agents ($Al_2(SO_4)_3$, $MgSO_4$ and $NaHSO_4$); in the presence of the fibers they act much more intensively than in the absence of fibers.

Many dyestuffs also act as flocculation agents. These are added to the beater stock in the manufacture of colored paper. An example of flocculation with fuchsin (Table IX, column 17) shows that this influence is not to be disregarded.

²¹ P. Klemm: Wochenblatt für Papierfabrikation, 1911, 666.

²² C. G. Schwalbe: Chemistry of Cellulose (Berlin, 1918) 55, 56.

The Action of Aluminum Hydrates in Sizing and the Electrostatic Sizing Theory

31. PREVIOUS MODES OF VIEW.

Although the free rosin theory is found, experimentally as well as theoretically, to be the best ground theory, it still is not completely satisfactory, since safe and permanent sizing cannot be attained without aluminum sulphate. C. Wurster helped himself over this difficulty ascribing a "diffusing action" to the aluminum hydrate over the rosin particles in the paper, without expressing himself further in the matter. One can so imagine this, that by frittering of the alumina particles lying between the rosin, a sort of a skeleton or frame is formed, thereby preventing agglomeration to larger flakes, and thus providing that the rosin precipitate remains, uniformly divided in the paper.

C. G. Schwalbe²⁵ attributed a protective action against atmospheric oxygen to the alumina hydrate, otherwise the rosin would be changed to an "unsizing crystalline oxidation product" which permits water to penetrate in the capillary openings between the crystals and causes a poorly sized condition.

Against this very obvious idea nothing will be opposed by the advancement of the following electrostatic sizing theory. However, the new conception in the author's opinion, includes a previously unconsidered factor²⁶ in the mode of action of the alumina in rosin sizing.

32. AN ELECTROSTATIC SIZING THEORY.

Old practical experiences do not lack in hints, that electrical phenomena must be somehow concerned in paper sizing. Thus, a case was reported to the author, where it was impossible to make any sized paper with a papermachine until the discovery was made that a copper plate of the machine, by some condition or other, tended to take up an electric charge. When this plate was grounded, the sizing was at once successful.

Further it is well-known that in mid-summer, frequent sizing troubles occur. The paper maker then says "the water is blooming" and it is possible, that in many cases he is right, in placing the blame on the water. In the warm part of the year, bacteria and the like can have settled in the water which causes the trouble. But since these troubles are observed especially if a storm is in the air, it may also be supposed that changes in the division of atmospheric electricity play a part herein.

The following laboratory investigation shows that in fact, such a supposition, *a priori*, is not improbable, although, naturally, for conclusive assertions, measurements of atmospheric electricity on the papermachine itself are indispensable.

A filter paper was broken up in a porcelain mortar in a little water with the addition of some quartz sand and allowed to remain quiet after pouring into a test tube. Then the supernatant fiber suspension was tested by electrophoresis in the previously described conduction apparatus. The investigation can be carried out with as much as possible strongly beaten cellulose slime. In spite of the considerable speed of settling of the still coarse suspension, after a few hours, a movement of the fibers toward the anode can be ascertained. Accordingly, the paper fibers in the beater are negatively charged.

If the paper is broken up with strong alum solution in place of distilled water, and electrophoresis tests made, the cellulose passes to the cathode, thus by means of the aluminum salt it becomes negatively charged.

The reaction between cellulose and aluminum sulphate has been exhaustively studied by Schwalbe and Lobsahm.²⁷ In this respect the fibers show remarkable cleavage possibilities for such Al salts, by which they quantitatively retain the colloidal part (Al(OH)₃): But to the contrary, the crystalloids (H₂SO₄) are neutralized by

organic bases which originate from the cellulose. These facts have been questioned repeatedly but Schwalbe, for example, in the main assembly of the "Vereins der Zellstoff- und Papierchemiker und Ingenieure" in 1922 maintained strong evidence for his conclusions. Also, by his own investigation, the writer has convinced himself of its correctness.

Colloid chemically, these processes are cleared up in the following manner. Aluminum hydroxide which originates in the hollander as a hydrolysis product of Al₂(SO₄)₃ is a positively charged colloid as its cataphoresis shows. It is drawn to the negatively charged fibers electrostatically and flocculates on them with neutralization of the charges. The assumption of Bowmann's Mordant Theory²⁸ by which the cell wall of the fiber acts as a semi-permeable membrane thus a micro dialysor, which permits molecularly dispersed Al₂(SO₄)₃ to pass into the lumen of the fiber but does not permit the hydrolytically formed Al(OH)₃ to diffuse out again, does not need to be drawn on for this conception. The hydrolysis of aluminum sulphate proceeds proportionally with the adsorption of its reaction product (Al₂O₃ n. H₂O); in sizing it proceeds the faster, as the other hydrolysis product (H₂SO₄) is used up. (Section 27.) That not only neutralization of the fiber charge but a positive charging as well is to be observed, is shown as follows: Since the Al₂(SO₄)₃, apart from the adsorption action of cellulose by the action of water is continually split up, aluminum hydrate is present in excess after the resulting neutralization of the electrical charges. The excess is adsorbed partly colloiddally, partly held by capillary forces and occlusion and so assists the hydrolysis until all the aluminum sulphate is used up. By this, the paper mass, as a whole, naturally takes up the positive charge of the excess alumina.

Up to now we have disregarded the influence of the alumina on the negatively charged colloidal rosin phase. In order to study this, an aluminum hydroxide sol was prepared from aluminum acetate by evaporating to the sol forming ionic concentration²⁹. In spite of its high concentration, which was evident by precipitating tests with K₄Fe(CN)₆, this sol was completely water clear. A few drops added to abietic acid hydrosol sufficed to discharge it so that in the conduction apparatus it passed to the cathode in a few hours while the anode arm became completely clear.

A filter paper suspension shaken with a few drops of the alumina sol migrated to the cathode, a confirmation of the previously described cataphoresis of the paper treated with alum.

From these reactions, the conclusion can be drawn that aluminum hydroxide with its positive charge, mediates between the two negatively charged and therefore electrostatically repelling constituents, rosin and cellulose. It acts as an "electrostatic adhesive."

The now formulated theory gives an informal explanation of the poor sizing of paper sized without aluminum salts.

By means of manifold mechanical occlusion and capillary effects with the beating in the beater stock, rosin flakes and fibers become matted; the frittering that is, shrinking in drying of the precipitate on the heated drying cylinders, may also cover the interwoven paper fibers with an uncracked rosin covering. With long standing, the electrostatic repulsion of the negatively charged particles and a general loosening of the structure by the extremely thin rosin covering and the cellulose as well causes the formation of minute fissures.

It is also known from experience³⁰ that a large excess of aluminum sulphate is injurious to fastness of sizing. To this is answered that with too rich adsorption of alumina hydrate all the constituents of the paper carry free positive charges and so would be disposed again to spontaneous repulsion and loosing of the whole system. *A well-sized paper, in which de-sizing need not be feared, accordingly, should be as near as possible to the isoelectric state.*

But the isoelectric condition of the paper is attained as said, in this manner, for neutralization of the negative charge of the fibers and the negative charge of the rosin the electro equivalent positively

²⁵ C. G. Schwalbe: Papier Fabrikant, 1912.

²⁶ Independently of the writer, R. Sieber and also Stöckigt and Klinger arrived at this conclusion.

²⁷ Schwalbe and Robsahm: Wochenblatt für Papier Fabrikation, 1912, 43, 1454.

²⁸ C. G. Schwalbe: The Chemistry of Cellulose, p. 95.

²⁹ W. Ostwald: Methods of Colloid Chemistry, Experiment 30.

³⁰ F. Acker: Papier Fabrikant, 1914, 964.

a day and then dried. The impressed trademark appeared sharply in comparison to unmordanted filter paper and a sort of tanning seemed to have taken place. Ink blotted only in small places; the sheet was approximately "mineral sized." The capillary rise of a positive $\text{Fe}(\text{OH})_3$ sol⁶⁰ in sheets of this paper and of a diluted negatively charged alkali blue solution was observed. The solutions had been previously tested for direction of migration in the conduction apparatus. The capillarity was also determined, comparatively, with unmordanted paper.

The negative alkali blue flocculated in the mordanted positive filter paper hardly 1 mm over the waterline with a sharp edge and only colorless water went slowly higher. In the unmordanted paper strips, alkali blue quickly climbed with the water more than a centimeter and colored the paper light blue.

The positive $\text{Fe}(\text{OH})_3$ sol behaved to the contrary. While in the common filter paper, the brown coloration remained more than a centimeter behind the colorless water, in the mordanted paper the brown color slowly moved upwards with a sharp edge, hardly a fraction of a centimeter behind the water.

The spot method also gave the same results, a drop of alkali blue showed a sharp edge on mordanted paper, about which a clear water zone broadened. On common filter paper, to the contrary, the blue diffuses. A drop of iron hydroxide sol showed the reverse less plainly but still recognizable.

Besides a confirmation of the previously described electrophoresis investigations, and also the electrostatic sizing theory these capillarity investigations confirmed by another independent method, the correctness of the Fichter-Schlbom capillary electro rule, which recently was attacked by American authors⁶¹ and defended by W. Ostwald⁶². For the colloidal chemistry laboratory, it brings the assumption that one has both negative and positive test paper. For their preparation it suffices to lay filter paper in aluminum sulphate solution for a short time; the paper is then washed and dried since, according to Schwalbe and Robsahm, only $\text{Al}(\text{OH})_3$ and no H_2SO_4 is taken up.

In fact "positive capillary paper" has come into quite general use in Prof. Ostwald's laboratory and has been tested many times. It is to be noted that it is harder to wet than unmordanted paper and therefore, it should be suitably dampened before use, for example by holding over the boiling water bath for a second⁶³.

SUMMARY PART II

1. The chemical equilibrium in the sizing beater was discussed with emphasis of its influences on the sizing process.
2. The flocculation value was determined against abietic acid hydrosol for a number of electrolytes. A progressive increase of the flocculating intensity with increasing charge of the cation was shown, on the other hand, a peptizing effect of the anion.
3. The appearing and possible flocculation and peptization phenomena were investigated under technical circumstances in the sizing hollander, especially the influence of frequently occurring impurities of the water, the admixtures in the size and the technical flocculation agent.
4. Wurster's free rosin theory was supported at its weakest point by the proposal of a complementary "electrostatic" sizing theory, which clarifies the action of $\text{Al}(\text{OH})_3$ in the sizing in this way, that the positively charged $\text{Al}(\text{OH})_3$ acts as an electrostatic adhesive between the two negatively charged components, fiber and rosin. By referring to facts from the industry and by a series of various laboratory researches these new conceptions can be proven and established.
6. The correctness of the Fichter-Sahlborn capillary electro rule was confirmed by the preparation of electro positive reagent paper.

⁶⁰ Prepared according to Experiment 30, Methods of Colloid Chemistry.

⁶¹ Chem. Centr., 1918, 1114.

⁶² W. Ostwald: Kolloidchem. Beih., 1918, p. 791.

⁶³ Methods of Colloid Chemistry, 4th Edition, p. 791.

F. T. Boles Joins Lacey Securities Corp.

An announcement of great interest in lumber and banking circles is made by Lacey Securities Corporation, Chicago, in the election of Frederic T. Boles as senior vice-president and treasurer of that organization. Mr. Boles has also purchased a substantial interest in the company.

Born in 1866 at Three Rivers, Mich., finishing his education at Olivet College, and for two years a school teacher, he then resolved to learn the lumber business, and from the bottom up. Beginning with the Detroit Lumber Company at Menominee, Michigan, he entered the woods and worked as logger, scaler, and then as mill-hand, grader, and operator of the more important machines in the mill. He attracted the attention of Perley Lowe, who invited him to Chicago, where he was employed on the wharfs of Perley Lowe & Co. In 1889 he started as salesman with the Lord & Bushnell Company, which was then merchandising not more than 6,000,000 feet of lumber a year—was elected Secretary in 1894, and from that time virtually guided the destiny of that company, becoming vice-president in 1902 and acquiring stock control in 1907. In 1917, when he sold his interest in the Lord & Bushnell Company, it was handling upwards of 100,000,000 feet annually.

After selling his interest in the Lord & Bushnell Company, Mr. Boles became affiliated with Baker, Fentress & Company, bankers; was elected director in 1918 and vice-president in 1919, retiring from and selling his interest in that company in 1923. During this time he was president of the Great Northern Lumber Company, of Leavenworth, Washington; president of the Saginaw Lumber Company, of Williams, Arizona; and co-receiver of the G. A. Smith properties in Oregon.

He always has been active in association work and served a term as president of the Lumbermen's Association of Chicago. It was during his administration that various divisions were established in that association so that each kind of lumber and each branch of the industry became a particular part in the association work. In fact this association became a model for many other similar associations throughout the country. Mr. Boles is a member of the Union League, Chicago Athletic Association, the Hinsdale Club, the Hinsdale Golf Club, and the Bohemian Club of San Francisco, California.

Has Paper Mill Project Been Abandoned

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., July 1, 1924.—Not a stone has been touched nor a shovelful of dirt moved this year at the unfinished plant of the Valley Paper Mills Company, organized about two years ago to build a paper mill in the town of Neenah. The foundation of a huge building is about half completed, a filtration plant has been started and other work has been done about the property but all work has been suspended for about a year. Several of the men interested in promoting the company have turned their efforts into other channels and there has been no indication of a revival of the concern.

Several hundred thousand dollars worth of stock have been sold to investors in this vicinity. Originally Adam Pohl was to have charge of manufacturing in the plant but he severed his connection with the company about the time building operations were started and after several changes in the company's plans, building was suspended and to all appearances, the project has been abandoned.

A. B. Sternfield Joins Bogalusa Paper Co.

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., June 28, 1924.—A. B. Sternfield, for five years traveling buyer of waste paper for D. Graff & Sons, has resigned his position to enter the employment of the Bogalusa Paper Company, Bogalusa, La., as traveling representative for that concern throughout the south. He has left Kalamazoo and will in about two months be joined by Mrs. Sternfield.

BLEACHING OF WOOD PULP*

I. Factors Affecting the Process, and Their Control

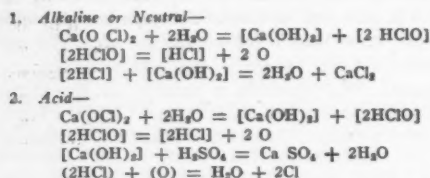
By C. E. CURRAN¹ AND P. K. BAIRD²

A study of the fundamental reactions involved in bleaching wood pulp has been in progress at the Forest Products Laboratory for the past three years. The object of the work is a determination of the factors affecting bleaching and of their individual and joint influence upon the process.

The effects of a number of the more obvious factors have been subject to frequent investigation. The results, however, have been inconsistent and the data from various sources are conflicting. In most instances the discrepancies can be traced to failure to recognize or to control adequately the variables concerned rather than to inaccuracy in observation. The variables are so numerous and their effects may be so modified by one another that accurate conclusions are impossible unless the methods of controlling them are very precise. Very slight variations of such major factors as temperature, consistence, etc., exert much greater influence upon the process than is generally assumed, while apparently minor factors are found to affect it greatly out of proportion to their presumed importance.

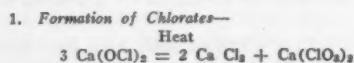
The purpose of the present paper is to point out a number of factors which enter into the bleaching reaction, the methods which have been developed for their control, and for the measurement of the effects which they produce. Results of investigations of the factors themselves will follow in subsequent papers.

For the present the field of investigation has been limited to hypochlorite bleaching. Chemical behavior of hypochlorites under alkaline, neutral, and acid conditions is shown by the following reactions:

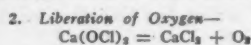


Regardless of the nature of the reaction (alkaline, neutral, or acid) the effect is essentially one of oxidation, in which oxygen, in a highly reactive condition, is liberated from hypochlorous acid. Under certain conditions, especially in an acid bleaching, a chlorinating effect is also produced. The chlorinated products formed are often colored (frequently yellow) but some, at least, are water soluble and may be easily removed.

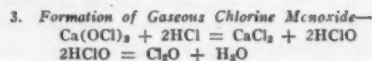
Several side reactions may occur in bleaching, simultaneously, and may serve to dissipate the available bleaching agent. Those most frequently encountered are:



This reaction usually takes place at high bleaching temperatures or under conditions of high concentration of chemicals. It is also brought about to some extent by the action of light.



This reaction takes place under approximately the same conditions as the formation of chlorates.



This reaction takes place under acid bleaching conditions and is not greatly affected by heat or concentration.

A brief list of the factors involved in bleaching would include the following:

- Temperature of bleaching.
- Consistence or concentration of the pulp.
- Condition of the pulp (wet or dry).
- Kind of pulp.
- Bleaching agent employed.
- Concentration of the bleaching agent.
- Hydrogen ion concentration of the bleaching solution.
- Impurities in the bleaching solution.
- Time of bleaching.
- Rate and method of mixing.
- Catalysis.
- Impurities in the water used.

Temperature, consistence and rate and method of mixing are the factors having apparently the greatest influence upon bleaching. The temperature factor enters into practically every phase of the process. Consistence and mixing are scarcely less important. Fortunately these conditions may be easily varied and controlled.

Other factors named in the above list, while not so readily measurable, may be maintained constant if precautions are taken. The logical development of the investigations has therefore been to study the effect of temperature and consistence upon the bleaching reaction, all other factors being held constant.

The more important effects of the factors listed may be observed in variations of the following characteristics:

- Time or velocity of bleaching reactions.
- Color of the pulp (whiteness).
- Yield.
- Strength of the bleached pulp.
- Chemical properties of the pulp.
- Uniformity of bleaching of fibers.
- Power or steam consumption.
- Economy or waste of bleaching agent.

The relative importance of the effects depends upon the point of view. The most readily measurable are reaction velocity, color, yield, and strength of the bleached pulp. Reaction velocity reflects the influence of practically every factor concerned. The color and strength properties of the pulp are qualitative. The yield is a measure of efficiency, other things being equal—though efficiency is also determined by a number of other effects. The color and rate of bleaching, therefore, and to a certain extent the yield, have been taken as a measure of the effect of temperature and consistence and of the general efficiency of the reaction.

Precautions Observed for Control of Variables

The control of bleaching conditions has presented a number of unlooked-for difficulties. In several instances seemingly insignificant factors caused erroneous results and demanded careful regulation. Thus, although consistence may be easily adjusted to any desired value, it was found the mixture of pulp and water must be uniform, especial care being necessary at the higher consistencies.

The moisture condition of the pulp is important. When water is added to dry pulp sufficient time must be allowed to permit thorough softening or uniform absorption of the liquid throughout the individual fibers; otherwise uneven bleaching results and the reaction speed is variable. In a series of experiments wherein bleaching was begun within one hour after mixing and all condi-

* Presented at the Annual Convention of the Technical Association of the Pulp and Paper Industry.

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tions were identical except that pulp of varying degrees of dryness was mixed with the proper amounts of water to bring about a fixed consistence, the following results were observed, indicating quite clearly the effect of this variable:

Percentage oven dryness of pulp	Time to exhaust bleach (minutes)	Percentage oven dryness of pulp	Time to exhaust bleach (minutes)
45.0	90	38.2	85
42.5	80	37.2	70
39.2	85	33.4	50

The difficulty was met by mixing the pulp and water several hours prior to bleaching, with the result that approximately the same bleaching time was required in each case.

In order to avoid variation of the composition of the bleach liquor, especially as regards its alkalinity and available chlorine content, a strongly alkaline liquor was prepared and stored in an earthenware jar at constant temperature. The air was excluded by covering the surface of the liquor with a layer of mineral oil. During six months' time the available chlorine content of this liquor, which was approximately 10 per cent, varied by only a few tenths of 1 per cent. The same also held true for its alkalinity².

The same pulp was used throughout any given series of experiments for the reason that the kind of pulp, or method and conditions under which it was prepared, might be expected to exert an influence on the reaction.

The influence of hardness of water will be considered in a later paper.

The method of applying energy in mixing pulp and bleach and the accurate control of temperature involved the construction of special apparatus as described below. The temperature control must be especially accurate in the early stages of reaction, as will be shown later herein.

Apparatus for the Experiments

The apparatus used is shown in Fig. 1. It consisted of a rotating

² Complete analysis of the liquor will appear in a subsequent paper.

barrel (average capacity about 10 pounds of bone dry pulp) made of oak, bleached and paraffined. It was rotated at an angle of 45°. Blades fitted to the inside curved surface and slanted at 30° to the axis served to mix the pulp thoroughly.

The stock was heated by being thrown against a heated coil. The latter was a copper pipe of sufficient length to make one turn around the inner wall of the barrel about 6 inches from the bottom. One end received steam from a gland in the bottom and the other exhausted to atmosphere through the side. The coil was connected with the control and diaphragm valve of a Foxboro thermometer, of the controller-recorder type. Steam at about 20 pounds pressure was led to the valve through a 1/8-inch needle valve. This arrangement served to give the volume of steam needed, while the pressure was maintained at about 8 ounces by a bleed-valve between the needle valve and the control diaphragm valve. The coil was also fitted for the attachment of a cold-water hose.

The barrel was fitted with a two-piece removable head having a 14-inch central opening which permitted quick sampling. During bleaching the opening was covered by an easily removable lid.

The thermometer well was of brass pipe one inch in diameter by seven feet long, with the lower end bent down so as to dip into the pulp. The thermometer bulb protruded from the end of the pipe for about 6 inches through a rubber stopper, thus giving a much quicker reaction to temperature change than if surrounded by a contained liquid. The well was supported from the ceiling by brackets and the thermal element connected with the recorder-controller, which was mounted on the wall near the barrel.

Experimental Procedure

In the studies the following procedure was developed and adopted as standard:

The pulp was kept and weighed out for the charges in the air dry form, so that variations in moisture determination were held to minimum. At least twelve hours previous to bleaching, the dry

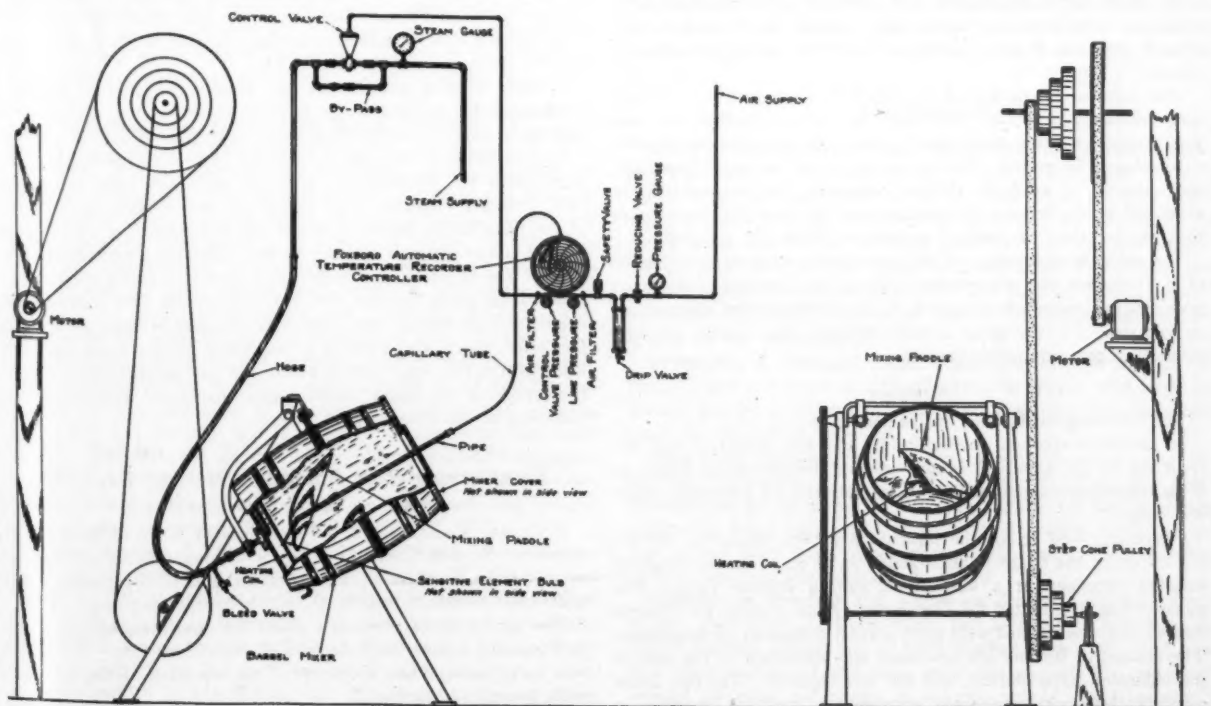


FIG. 1.
Experimental Bleaching Apparatus

pulp was placed in the barrel with the required amount of water for the consistence desired.

The control of temperature in the early stages of the reaction required careful manipulation. The temperature was first brought to a predetermined point above that selected for the experiment; then by the addition of cold bleach liquor the mass was brought to the desired temperature, which was afterward maintained constant to within one-fourth degree centigrade. A considerable amount of heat is developed in the reaction itself, and must be compensated.

The barrel was rotated at a rate determined by the requirements for complete mixing and controlled by means of step pulleys. In any given series the rate was constant.

In order to give the same start to the reaction in each case it was necessary to insure a thorough mixing of bleech liquor and pulp in the shortest possible time. In order to do this the mixing blades were always placed in the same position when adding the liquor.

Sampling

Progress of the bleaching was followed by taking samples of the pulp and liquor at various stages of the process. The liquor was analyzed for residual chlorine, the pulp was washed and made into hand sheets which were used for color determinations.

On account of its great initial speed the majority of samples were taken during the first part of the reaction. So great, in fact, was the speed found to be that unless samples were taken in exactly the same manner each time a large error was possible. The procedure was therefore standardized as follows: A tared glass jar, preferably heated to the temperature of the bleaching mixture, was partly filled by four dips of a 400 cc. beaker from the barrel, the object being to obtain an average sample. Dipping was timed with a stop-watch, correction made, and the mean instant of separation of liquor from fiber determined. The jar and contents were weighed and the liquor was then squeezed from several handfuls of pulp. This liquor was filtered through a separate dry funnel containing glass wool and was cooled by passing through a vertical condenser. The cooled liquor was caught and analyzed for residual available chlorine. The pulp was immediately washed on a small screen, diluted with water, and replaced in a jar for use in making hand sheets.

The point of exhaustion of the bleach in the barrel (or "100 per cent consumption") was determined by the starchiodide test and was assumed to have been reached when 30 seconds were required to develop a blue spot. At this stage, under ordinary conditions, the quantity of available chlorine remaining is too small to be measured by the regular titration method but probably corresponds to a concentration of standard powder of about .005 per cent.

The color determinations of the hand sheets were made by means of a Hess-Ives tint photometer. While this instrument does not give absolute color measurements it is satisfactory for purposes of comparison. By averaging several readings color values accurate to about 1 per cent were obtained.

Analyses

The following methods of analysis were used:

AVAILABLE CHLORINE (hypochlorites and free chlorine) was determined by the standard sodium arsenite⁴ method using iodine as a back-titration solution and an inside indicator of potassium iodide and starch.

CHLORATES.—50 cc. of the bleach liquor was diluted to 500 cc. and 50 cc. of the dilute solution added to 25 cc. of ferrous sulphate solution contained in a flask fitted with a Bunsen valve. The mixture was then heated for 15 minutes. After cooling, the residual ferrous salt was titrated with tenth normal potassium permanganate. The amount of ferrous salt consumed was equivalent to the sum of the chlorates, hypochlorites, and the free chlorine. The two latter quantities had been determined separately by methods described in

⁴ Mohr's Modification of Penot Method. Fresenius-Cohn, Vol. II, p. 381.

the preceding paragraph, and the chlorates were determined by difference.

ALKALINITY.—A 25 cc. sample of bleach liquor was treated with 2 cc. of tenth normal sodium hydroxide and hydrogen peroxide added until a drop of the sample no longer produced a blue spot on starch-iodide paper. An excess caused a black spot on the paper. The solution was then made distinctly red with phenolphthalein and titrated with tenth normal hydrochloric acid to colorless. By deducting the 2 cc. of sodium hydroxide added and also correcting for any acidity due to the hydrogen peroxide, the equivalent of the amount of tenth normal hydrochloric acid used was obtained and calculated either as Na₂O, NaOH, CaO, or Ca(OH)₂ in grams per liter of the bleached liquor.

CHLORIDES⁵ were determined from a portion of the same liquor used for the determination of available chlorine. The available chlorine was destroyed with hydrogen peroxide, starch-iodide paper being used to show the end point, and the solution acidified with nitric acid. It was then neutralized with an excess of chlorine-free calcium carbonate and finally titrated with tenth-normal silver nitrate, methyl orange and potassium chromate being the respective indicators.

Summary

1. The factors involved in bleaching and the effects which they produce are pointed out.
2. Methods for controlling the factors and for the measurement of their effects when varied are described.

⁵ Schwalbe-Sieber "Die Chemische Betriebs Kontrollen in der Zellstoff und Papier-Industrie." Zweite Auflage., p. 203.

Simplification Program Cleared Up

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., July 2, 1924.—As the result of a conference held in Washington last week between Hugh P. Baker, Secretary of the American Paper and Pulp Association and R. M. Hudson, chief of the Simplified Practice Division of the Department of Commerce it is believed that the misunderstanding relative to the paper simplification program has been cleared up.

A letter is being prepared by Mr. Hudson which will explain in some detail the attitude of the Division regarding this program and this letter will be forwarded to paper mills throughout the country.

It is understood that the paper mills generally although in sympathy with the simplification program have not fully understood just what the Department of Commerce was driving at. Officials of the Department had no desire to ask paper mills to discard their present stocks of paper in order to fit in with the simplification program. The desire is, it is understood, merely to obtain the endorsement of the paper industry for simplification and later more definite details will be worked out. However this will be fully set forth in the letter which Mr. Hudson is preparing for the trade and it is believed that this letter will do away with any necessity for a further conference of the paper simplification committee which was contemplated at one time.

Reorganization of American Writing Paper Co.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., July 1, 1924.—President S. L. Willson of the American Writing Paper Company is looking forward to receiving some definite word as to the reorganization of the company now under way within a month, he told newspaper men last week.

The survey of the company's plants has been completed by Hardy S. Ferguson, a paper mill engineer of New York City. His survey was very thorough and his report of the condition of the company's mills is very satisfactory.

The survey is said to tally quite closely with a survey made by William L. Nixon and Leon M. Yoerg, two officials of the concern.

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

CLARENCE J. WEST, CHAIRMAN

Cellulose and Lignin

Purified Cellulose. Helmer Roschier. *Suomen Paperi-Ja Puhkavaltehti*, No. 22 (Nov. 30, 1923). Wood pulp may be prepared in such a manner that the fibers resemble pure cotton cellulose. This pulp is described as "refined" wood cellulose. When subjected to special treatment it yields "purified cellulose" which may be regarded as much superior to other forms of sulphite pulp. According to the patent specifications the purifying process is mainly a mechanical treatment of pure wood cellulose in a slightly alkaline sulphite solution. The resulting product is of exceptionally high grade quality, containing 94.8 per cent of alpha-cellulose, pentosans 2.4 per cent, copper number 1.35, calcium reading 0.26, and ash 0.35. Tables are given showing that unbleached sulphite yielded 87.6 per cent of alpha-cellulose, bleached sulphite 90.3 per cent, easy-bleaching 88.5 per cent. The properties of purified cellulose are delicacy of fiber, bulkiness, softness, great absorbent power, and affinity for chemical reagents. It may be used with advantage, instead of cotton, for blotting paper, light book papers, and in the manufacture of artificial silk and explosives. The mechanical treatment of the wood, which shields the refined wood pulp, appears to free the fibers from a large proportion of impurities, so that, microscopically and chemically, the ultimate product, or purified cellulose, has the same percentage of purity as purified cotton.—P. B.

Power of an Obsolete Nomenclature. Louis E. Wise. *Paper* 33, No. 18, 5-8, 11 (Feb. 21, 1924). A discussion of the terms hydrated cellulose, hydrocellulose, oxycellulose, and alpha-, beta- and gamma-cellulose, showing that none of them represents a definite compound, but are really merely descriptive terms referring to the past history of the cellulose involved, which become meaningless when stretched to cover actual properties of mixture, deliberately or inadvertently obtained in the varied industries using cellulose.—A. P.-C.

Determination of Pentosans in Wood Cellulose. Walter J. Powell and Henry Whittaker. *J. Soc. Chem. Ind.* 43, 25-36T (Feb. 22, 1924). The authors describe a method based essentially on addition of an excess of bromide-bromate solution to the furfural-containing distillate and titrating the excess of bromine with standard thiosulphate after addition of potassium iodide. Distill 0.5 to 0.8 g. of material with 12 per cent hydrochloric acid (in an apparatus with all glass connections) until the distillate gives no further color with aniline acetate and make the distillate up to exactly 500 cc. with 12 per cent hydrochloric acid. Pipette 25 cc. of decinormal sodium bromide-bromate solution into each of four glass-stoppered bottles, to two of them add 200 cc. of distillate and to the other two 200 cc. of 12 per cent hydrochloric acid, let stand in the dark for one hour, add 10 cc. of 10 per cent potassium iodide solution, and titrate the liberated iodine with decinormal thiosulphate solution, 1 cc. of which is equivalent to 0.0024 g. of furfural. Comparative determinations carried out by the gravimetric and volumetric methods gave practically identical results.—A. P.-C.

Potash Fusions of Lignin, Cellulose and Wood. Emil Heuser and Fritz Hermann. *Cellulosechemie* 5,1-6 (Jan. 27, 1924). Potash fusions of lignin, according to the procedure of Heuser and Winsvold, yielded results in agreement with these investigators, namely: 15.7 to 19.1 per cent protocatechuic acid, 2.0 to 5.2 per cent pyrocatechol, and 0.9 to 20.2 per cent oxalic acid, when in a nickel crucible; and 9.8, 21.3 to 23.1 per cent and 0.0 per cent, respectively, when in an iron crucible. When iron powder was used, instead of an iron crucible, as a catalyzer, the yield in aromatic substances in-

creased to about 25 per cent, and in particular the splitting of carbon dioxide from pyrocatechuic acid, which is first formed. The effect of temperature variation, within certain limits, 270 to 280° C., has no marked effect on the yields. Use of ammonium carbonate brings about a reversion of pyrocatechol to protocatechuic acid. Potash fusion, without this salt, and in an atmosphere of hydrogen, yielded 9.84 per cent protocatechuic acid, and 21.32 per cent pyrocatechol; with the addition of ammonium carbonate, the corresponding yields were 23.53 per cent, and 7.04 per cent. A fusion in an atmosphere of carbon dioxide did not result in such a marked decomposition as in an atmosphere of hydrogen, owing to the fact that in the former case most of the potassium hydroxide was converted to carbonate. Potash fusions of lignin in air and in a nickel crucible gave 27 to 28 per cent carbon dioxide. Pure pyrocatechol, when subjected to the same treatment was practically unchanged and was recovered to the extent of 95 per cent. Potash fusions of cellulose (purified according to Robinoff) gave no aromatic substances, but about 90 per cent oxalic acid, 21 to 22 per cent acetic acid, and 1.5 per cent to 2 per cent formic acid. The oxalic acid yield was not influenced by the use of either hydrogen or iron. Potash fusions of wood gave 59 to 65 per cent oxalic acid; 1.8 to 7.1 protocatechuic acid, 0.5 to 7.0 per cent pyrocatechol, 15.4 to 18 per cent acetic acid, and 0.5 to 2.3 per cent formic acid. In general it behaved much like lignin.—J. L. P.

Nature of Lignin. Ernst Strupp. *Cellulosechemie* 4, 6-7 (Jan. 27, 1924). A brief review is given of the evidence concerning the nature of lignin. The theory that lignin is composed of cyclo-sugars (cycloses) is offered. This view explains the possibility of the formation of both aromatic and aliphatic substances in the decomposition of lignin. Work is being carried out to prove the theory.—J. L. P.

Raw Materials

Effect of Rate of Growth on Density and Fiber Characteristics of Pulpwood. J. D. Hale. *Pulp & Paper* 22, 273-274 (Mar. 6, 1924). Fast growing wood is lighter than slow growing wood, because it has relatively more of the large thin-walled cells of the spring wood and less of the thick-walled cells of the late summer wood. Also fast growing wood contains fewer fibers than slow growing wood of the same diameter. The yield of pulp is not proportional to the rate of growth but approximately proportional to the density of the wood.—A. P.-C.

Treatment of Decayed Wood in and Outside the Mill. J. H. Faull. *Pulp and Paper* 22, 255-257 (Feb. 28, 1924). The more important diseases of balsam and spruce are described, and suggestions made for controlling them.—A. P.-C.

Pulp from Fibrous Peat. Albert Koch Akt.—Ges. Ger pat. 388,344. *Papierfabr.* 22, Tech.-Wiss. Teil 49 (Feb. 10, 1924). Fibrous peat can be converted into pulp, suitable for fine or printing papers, by being subjected first to a rapid heating treatment and then several times to the action of an alkaline bath. This is followed by a bleaching operation.—J. L. P.

Changes in Sawdust and Chips on Storing. Hilding Bergstrom. *Papierfabr.* 22, Tech.-Wiss. Teil 37-38 (Feb. 3, 1924). Ultimate analyses carried out on fresh sawdust from pine wood, sawdust after storage of one year, and after storage for two years, showed no great differences in calorific values. On exposure to air, sawdust from a growing tree evolves carbon dioxide. At 15° C. during a period of 65 days fresh sawdust from pine wood showed

a 4 per cent loss in wood substance in the form of carbon dioxide. Gas removed from the interior of a sawdust pile, after standing one year, gave 6.3 per cent, by volume, of carbon dioxide and 14.3 per cent oxygen. The outer wood of spruce, pine and birch was found to contain 0.06 to 0.12 cc. carbon dioxide per gram of water present. The carbon dioxide content of the inner wood was much less.—J. L. P.

Method of Preserving Bagasse Fibers and a Bale Thereof. T. B. Munroe assignor to C. F. Dahlberg. U. S. pat. 1,479,419, Jan. 1, 1924). Bagasse fibers for use in the manufacture of pulp are partially softened and at the same time preserved by introducing into the interior of a mass of bagasse a substance capable of generating heat, e. g., caustic lime, in sufficient quantity to soften the fibers, and then forming the mass into a bale under pressure so that the outer layers of fiber form a compact coating impervious to air.—A. P.-C.

Use of Esparto. J. Micol de Portemont. *Papier* 27, 69-72 (Jan., 1924). A preliminary mechanical treatment carried out before shipment gives a sort of tow which laboratory tests have shown to be easier to treat, giving a higher yield of pulp with lower consumption of chemicals.—A. P.-C.

Manufacture of Paper from Esparto and Other Grasses. H. V. and E. H. Brooke and W. Stapleton. Eng. pat. 296,010. In this process esparto, rags, ropes, hemp, etc., are boiled for 1½ hours in a solution containing 2.5 ounces of hydrochloric acid per gallon. The liquor is then drawn off and the material is boiled again for 1 hour in fresh water, after which it is washed in hot water and boiled for two hours in a solution of soda crystals containing 455 lb. per ton of fiber. The liquor is finally drained off and the material washed and treated in the usual manner.—A. P.-C.

Cellulose from Corn Cobs. F. C. Atkinson. U. S. pat. 1,472,318, Oct. 30, 1923. Corn cob fragments are boiled with dilute inorganic acid, washed to remove water-soluble substances, boiled with a dilute caustic soda solution, e. g., a 1 to 2 per cent caustic soda solution, centrifuged and then mixed with hot water and boiled to remove the caustic solution, these operations being repeated if necessary to effect substantially complete removal of the caustic.—A. P.-C.

Utilization of Old Paper. Anon. *Papierfabr.* 22, Tech.—Wiss. Teil 55-56 (Feb. 17, 1924). A short, general article on the reworking of old papers.—J. L. P.

Apparatus for Treatment of Mixed Waste Paper Stock. C. W. Shartle. U. S. pat. 1,415,902, May 16, 1922. The waste paper stock is fed to a breaker beater where it is broken up and from which it passes to a pump (either directly or by passing first into a reservoir). It is then sent through a settling trough where the heavy impurities settle out, through a "whirlpool" where light impurities rise to the top and are skimmed off, and through a second trough on to a screen. The stock which passes through the screen is sent to a decker, while the screenings, which consist mostly of long fibered stock such as chemical and rag pulps, are sent to a finishing beater of the usual type equipped with a Buehler perforated backfall (U. S. pat. 1,271,426, July 2, 1918) for the continuous and automatic removal of the stock when it has reached the desired state of beating. If the breaker beater is operated continuously, the reservoir is eliminated; but if the stock is worked up in batches the batches are dumped into the reservoir, and the stock is pumped out of it continuously so as to make the remainder of the process continuous.—A. P.-C.

Apparatus for Reclaiming Paraffin Wax and Paper from Paraffined Paper Waste. B. B. Wickey. U. S. pat. 1,431,553, Oct. 10, 1922. The waste paper is fed into a tank, divided by longitudinal partitions so as to give a long path to the stock, which contains a hot solution of 1 lb. of hydrated sodium carbonate per gallon of water. The action of the chemical separates the paraffin (or other wax) which rises to the surface, and the fibers are prevented from coming to the surface by a screen spread through the tank at a

suitable depth below the surface. Agitators are provided to facilitate the liberation of the wax and to convey the stock through from the intake to the outlet.—A. P.-C.

Apparatus for Treatment of Waste Paper Stock. F. P. Miller. U. S. pat. 1,432,774, Oct. 24, 1922. The stock is boiled in ordinary rotary digesters and dumped on the floor as usual. A powerful water spray is played on the pile to make it flow into a gutter from which it goes to a trough where it is picked up by an endless conveyor passing over a screen through which the fine material passes, while the coarser pieces (unbroken pieces of paper, string, etc.) are discharged on to a horizontal travelling sorting table constructed of slats to let the water drain through. Any undesirable material is sorted by hand, and the remainder is discharged back into the main stream of pulp, which flows over a pocket where heavy impurities settle out. The stock is then screened and the screenings sent to a beater, while the fine stock is deckered. The beaten stock may be either discharged into the main stream of pulp just after it has passed the sorting table, or else used separately for the manufacture of paper. The system eliminates the useless working up and beating of sufficiently fine fibers, which would be greatly weakened by such excessive treatment, and reduces the amount of beating equipment required.—A. P.-C.

Sulphite Process

Steel Alloy Resisting the Action of Sulphurous Acid at High Temperatures and Pressures. F. Krupp A.—G. Eng. pat. 201,915, July 31, 1923. Chromium-nickel steels are liable to corrosion by sulphurous acid when used under conditions of high temperature and pressure. By the addition of molybdenum to these alloys the resistance to corrosion under the above conditions is increased. For this purpose the articles employed are made from steel alloys containing 18 to 30 per cent of chromium, 20 to 24 per cent of nickel, 2 to 4 per cent of molybdenum, and 0.1 to 0.4 per cent of carbon.—A. P.-C.

Pressure-Temperature Records Simplify Close Control of the Sulphite Cook. C. E. Sullivan. *Paper Trade J.* 78, No. 9, 47 (Feb. 28, 1924). The Foxboro Co. has produced a combined pressure and temperature recorder in which the pressure and temperature curves are made on the same chart. As the steam pressure is that corresponding to the digester temperature, it can be obtained directly from the chart without the use of steam tables, and the difference between it and the total pressure gives the gas pressure in the digester.—A. P.-C.

Method of Burning Sulphur. H. S. Davis. U. S. pat. 1,541,763, Apr. 17, 1923. In burning sulphur, small traces of petroleum or other organic impurities react with the sulphur to form asphaltic compounds which spread as a thin film over the surface of the sulphur and eventually extinguish the flame. If the sulphur is heated for a short time at the boiling temperature the oil reacts with the sulphur and is destroyed without formation of asphaltic compounds. In the present instance this is accomplished by burning the sulphur in a container made of a good heat conductor, such as aluminum, insulated with a suitable thickness of magnesia, having an aluminum reflector to radiate the heat back on to the body of sulphur, and rods or chimneys of aluminum which conduct the heat into the body of sulphur to heat it to the boiling point. In this way sulphur will burn freely, leaving only 0.3 per cent of residue.—A. P.-C.

Volometric Gas Analyzing Apparatus. J. W. Hogg. U. S. pat. 1,435,846, Nov. 13, 1922. The instrument consists essentially of two differential pressure flowmeters between which is placed a chamber for absorbing the constituent to be determined. An indicating and recording device is operated by the two flowmeters in such a way as to measure the proportion of the gas which was absorbed. An outline of the theory of the instrument is given. (The apparatus would be suitable for the analysis of flue gases or of sulphur burner gases.—Abstractor)—A. P.-C.

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Conducted by THOS. J. BURKE, C.A., Sec-Treas

METHODS OF SUPPLYING COST INFORMATION TO FOREMEN*

BY HUGO DIEMER, LA SALLE EXTENSION UNIVERSITY

The question may well be asked: To what extent are cost records actually brought to the attention of foremen at the present time? Our experience with over 1,000 foremen in 192 separate kinds of industry shows that in not over 10 per cent of the cases are cost records brought to the foreman's attention at all. In most of the smaller businesses, the management keeps cost data closely guarded and usually does not want the foreman to know what profit is being made. We recognize that it is very poor policy to do this, but we must look the facts in the face.

Most managers can be sold on the idea of the advantage of giving the foreman certain comparative cost data, even if they do not want to have him get total costs. Many managers feel that the foreman who are not completely sold on the idea of their being a part of the management will distribute cost information in the shop in such a way as to wreck the whole institution. This does not prove to be the case. However, if the fear exists, comparative cost data can still be given out in terms of percentages of increase or decrease. These percentages can be broken down by operations without disclosing the actual comparative figures. This procedure, of course, is advocated merely as a temporary expedient until such time as the management and foremen have complete confidence in each other and co-operate properly.

What Kind of Records May Safely Be Given to Foremen?

In most records that are in any sense of the word "modern" the following six classes of expenditures are found:

1. Direct labor
2. Direct material
3. Departmental overhead which is divided into
 - (a) Departmental indirect labor
 - (b) Departmental indirect material
 - (c) Departmental service and retail charges. This group includes the items which it may fairly be assumed are controlled by foremen
4. General shop overhead not controllable by departments
5. Administrative and commercial overhead
6. Sales expense

Direct Labor

Foremen are usually irritated and justly so when cost records of direct labor are brought to them a considerable time after the labor has been performed and the question is asked "Why did this

job take so long, or take so much time when it only took so long or cost so much on previous occasions? The foreman's answer in such cases is always the statement that he cannot do anything with post-mortems, that the time to have taken this matter up was when he job was going through. One way to forestall this answer is to make it necessary for the foremen to initial or punch every work-ticket at the time it is turned in. If there has been any attempt at standardization, this work ticket should contain for the information and guidance of the foreman and operative, data as to piece-rate, bonus or premium rate, time allowance, or predetermined estimate of time or direct-labor cost. Under this procedure, the foreman cannot side-step his responsibility for checking the actual performance against the standard and thus knowing why the job took too long.

Where there is a system of departmental dispatch boards on which each day's schedule of jobs ahead is posted by means of some visible index plan, it is the duty of a foreman to check up each operative's schedule for the day against the operative's progress from time to time during the day. Then he can readily see when a man is falling behind his schedule. The foreman's obvious duty in such cases is to discover the interferences and remove them, if possible.

In order to make such a dispatch board or visible index effective, it is necessary to schedule individual workmen and machines by separate days, and not merely to file jobs ahead in sequence. This latter procedure may be entirely satisfactory from a standpoint of central scheduling, but a foreman who is really controlling his production, needs to make definite assignments of jobs to each man in advance of operations.

In order that a foreman may do his most effective work in preventing too much direct labor at the source, it is important that the work-ticket, which he approves for the changing of jobs and the same ticket, or whatever other ticket may be used on the dispatch board, be designed in such a manner as to make it easy instead of difficult for the foreman to get just the information he needs. In this connection it should be borne in mind that the accounting type of mind adapts itself much more easily to the use of abbreviations in the form of symbols and numbers, than does the foreman's type of mind. In the long run, it pays to translate the symbols and numbers into a sufficient number of plain English words so that there will be no misunderstanding. For example, such information as the name of part and name of operation should be supplied for

* From N. A. C. A. Bulletin.

the purpose of more effective cost control by the foreman. Symbols and numbers should be used, however, for greater ease in sorting and classification of cost data.

Direct Material

The best way to help the foreman exercise cost control of direct material is to provide for every shop order that he gets, the accompanying material orders written in advance, with the proper numbers, symbols, and names inserted. In most cases, these material orders or store-room requisitions will be forwarded only to the foreman in the department which performs the first operation on the job. A further refinement, as some would term it, but a method which I would rather designate as a further check on material consumption, is the use of the "move material" slip, so-called. In many concerns the central stores department or the production department has control over inter-departmental movements of material. Where this is the case move material slips are written out in advance for all inter-departmental movements of material. Everything is filled out on these slips, excepting the number received, number completed, number rejected and number moved to next operation. These figures are left for the foreman to fill in. In this way, the foreman records his knowledge of and responsibility for any shortages, breakages or rejections. In a flow-type of industry, the move material ticket has its counterpart in the records of automatic scales, or other measuring devices.

Departmental Indirect Labor

The foreman should sign or punch all time-tickets or work-tickets of men engaged in performing indirect labor in his department. He should receive a resumé of the totals of these indirect labor orders for his department, covering every cost period. Having approved the tickets from which the resumé is made up, he has no alibi as to his responsibility. Here again, the kind of work should be stated in plain English as is the case also on the direct tickets as well as the proper symbol or number. In many cases, it will pay to have for each department a special indirect-labor ticket on the back of which are listed the numbers and definitions of all of the indirect-labor orders to be used in that department. The reason for this feature is that the assignment of work of this sort cannot pass through a central planning or production department, since it is usually made by the foreman himself and he, or his clerk, if he has one, usually fills in the face of this sort of work-ticket roughly in pencil.

Departmental Indirect Material

The same difficulties which make it impracticable for a central planning or production department to assign work to indirect labor apply also in the case of the authorization of the consumption of departmental indirect material. When the Cost Department sends each foreman a statement for the cost period, covering departmental indirect material costs, his attention should be called to anything that looks like extravagance in consumption of supplies, such as waste or too great breakage or too early discarding of drills, files, etc. The original papers filled out when these costs arose are usually clipped to such a statement.

Departmental Service and Rental Charges

The method employed in apportioning to each department its fair quota of heat, light and power charges, depreciation, taxes, insurance, etc., should be openly and clearly set forth, preferably in the statement of such costs itself. The statement can be printed in such a manner that all that need be entered for each department are certain figures indicating the percentage of the total figures or other basis on which that department is charged, such as square feet of floor space, cubic feet of space, etc. Here, again I advocate the use of plain English rather than symbols and numbers in preparing the statement. I know a case where a Personnel Manager began to investigate the expenses charged to his department under certain symbols. He noted that a certain symbol meant outside

hospital expenses. He saw that from \$2,000 to \$5,000 a month was charged up against that symbol. On investigation he discovered that no accident had occurred which would have justified the expenses charged to this account. The Accounting Department referred the Personnel Manager to the Treasurer who told him that this account was simply a dumping place to conceal such expenses as bribery, detective service, etc. This sort of deception, while it might conceivably be practiced on a Personnel Superintendent without disastrous results, would be fatal to the continuance of any confidence in the Accounting Department, if practiced on a foreman.

Administrative and Commercial Overhead

It is not wise as a rule to inform the foremen about sales expenses without paving the way by a carefully prepared series of talks and charts, giving them fundamental instruction in general industrial economics and the specific economics of the industry in which they are working. They can scarcely be expected to acquire this information on their own initiative. On the other hand, if they are fully informed as to the nature of overhead, and the necessity for it, they gradually begin to assume the attitude and viewpoint of the business man. I recall how this change in attitude took place in a plant manufacturing shot-guns, where the direct labor represented about one-seventh of the selling price; material cost, about two-sevenths; and the total of shop overhead, administrative overhead, and sales expenses about four-sevenths. When the foreman were given figures as to the cost of catalogs, instruction books, packages, freight, interest on consigned goods, rentals or warehouses, traveling expenses, commissions, etc., in gross amounts and translated into percentages, their entire attitude and outlook changed.

Cost Accounts Versus Cost Records

Thus far, only the records of original entry which go to make up cost accounts have been discussed. If we use the term accounts in its technically correct meaning as consisting of debits and credits, we still have to consider the accounting aspect of cost records. It is only the rare and exceptional foreman who has studied book-keeping and can be expected to make "head or tail" out of cost statements presented in accounting form.

There are certain cost accounts or features of cost accounts in accounting form, however, which when selected should be brought to the foreman's attention. These features are the following: 1. Raw materials in store-room; 2. Materials in process; 3. Finished parts or groups of parts awaiting assembly; and 4. Comparison of money spent during a cost period and money received.

Taking the foregoing items separately, let us first consider the raw materials or other un-issued materials in the store-room. In some companies, the foreman has nothing to say with regard to the procurement of these materials. In other companies, his word or requisition is directly responsible for the procurement of such materials. In any event, his co-operative interest should be secured in holding down the investment in stores to a practical minimum, even though the majority of materials in the store-room may be allotted or apportioned to prospective production orders.

With regard to materials in process, we will always find that certain foremen believe in making a great display of a large amount of material in their department, since it makes the workmen think there is lots of work ahead, and impresses other officials passing through the department with the industry and importance of that department. Here again, it is worth while to acquaint a foreman with the desirability of quick turn-over. Since we have developed a modern method of production control, there are many businesses which were satisfied ten years ago with one or one and one-half turnovers of their capital in a year, but today, however, are making three or four turnovers of their capital.

The old-time foreman like to look on the store-room and his own pile of partially-worked materials, as well, as an inexhaustible supply for all kinds of jobs which, working any definite planning or scheduling, he could assign to any workman who happened to run

out of a job. This conditions is incompatible with modern production methods and competition.

In an assembling industry, it is exceedingly important that the flow of parts or group of parts awaiting assembly be regulated in such a way as to make the most effective use of the assembler's time. Hence, it is important that a periodic check be made on this flow and its regulation. A capable Cost Department can devise reports that will furnish the basis for the necessary regulation.

There is hardly any business in which the seasonal fluctuations of income and expenditures to not play an important part. The foreman, Purchasing Agent, the Stores Department and the Sales Department can all render effective co-operation in reducing these fluctuations in order to make possible a minimum of borrowing and a maximum of cash discounts. This information in regard to the comparison of money spent and received during a period when put in graphical form, is readily understood and appreciated by the more intelligent type of foreman.

Characteristics of Foremen

Many foremen have risen from the ranks with very little formal schooling. Such men are apt to be skeptical regarding educational ventures of any kind. Their motto is "Practice makes perfect." As a class they do not realize that whenever they endeavor to find a reason for doing a certain thing—to get the "why" behind it—they are searching for theory. The dominant characteristics of any group of foremen are likely to be as follows:

1. They have mature minds.
2. They are inclined to scoff at theory.
3. They have well-established habits.
4. They are largely "self-made" men.
5. They are self-confident and of the "show me" type.
6. They are usually not entirely open-minded.

7. They have not analyzed their jobs carefully enough in some cases.

8. They think best in the face of opposition.

9. They keenly enjoy discussing their everyday problems.

10. They are cautious of encroachment upon their authority.

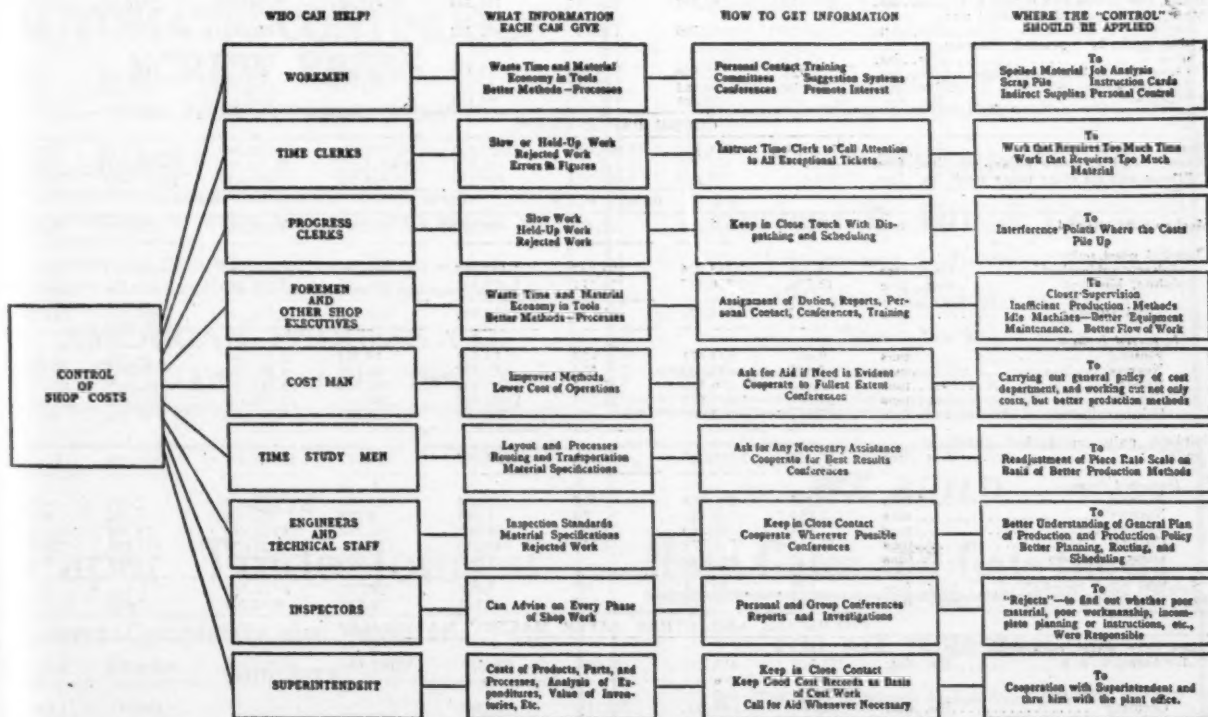
11. They have high regard for the square deal.

12. They are willing to co-operate well if they have faith in the person in charge of any proposition.

To Help Foremen Control Shop Costs

The following chart has been prepared for the use of foremen with a view to helping them help themselves in exercising the kind of cost control of which they are capable.

In conclusion it may be stated that it has been the writer's experience that in most cases, insufficient information as to costs is brought to the attention of the foreman. It is recommended that the foreman be systematically informed as to his departmental costs, covering direct labor, direct material and departmental overhead, the latter including departmental indirect labor, departmental indirect material and departmental service and rental charges. It is also recommended that the foreman be informed as to the periodic status of raw materials in the store-rooms materials in process, finished parts or groups of parts awaiting assembly, and furthermore that he be given an opportunity to discuss in conference cost reports supplied to him. I have tried to indicate the importance of understanding the dominant characteristics of the average foreman and the necessity of presenting cost data to him in such form that he can understand it and be encouraged to use it in day-by-day control of costs by methods suitable to his capacity and authority. This whole question is one of the most important confronting the cost man, the solution of which can materially advance the progress of American industry.



CONTACT POINTS OF COST CONTROL

Your experience as a production man has demonstrated that there are certain interference points in your shop where work gets in a jam and slows up production. Apply the same idea to your cost problems; pick out the points at which costs are liable to pile up, and pin a red tag on them so that when they do start climbing, you will know exactly where to apply pressure.

Start at these points and trace the trouble backwards until you reach the point where it originated. By following such a procedure you not only acquire better control of your costs, but you also become the dominating factor you should be in holding them down. It is this type of advance preparation that forestalls trouble and safeguards you against costly emergencies.

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PAPER AND PAPER STOCKS IMPORTS AND EXPORTS OF THE UNITED STATES
For the Month Ending April 30, 1924, and for the Ten Months Ended April 30, 1924, as Compared with
Corresponding Months of Previous Year

PAPER AND MANUFACTURES OF	IMPORTS—PAPER.							
	April 1923		April 1924		Ten Months Ending April 30 1923		Ten Months Ending April 30 1924	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper, except printed matter (total).....		\$9,856,994		\$9,956,414		\$82,615,425		\$98,130,965
Printing paper—								
Standard news print.....lbs..Free	223,424,387	8,369,650	223,888,682	8,590,695	1,928,025,982	69,610,970	2,224,671,227	83,911,092
Imported from—								
Finland.....lbs.	5,254,887	168,205	2,475,203	77,838	54,169,413	1,655,610	56,876,242	1,843,601
Germany.....lbs.	6,707,941	216,690	6,354,431	208,070	63,484,932	2,029,591	92,265,373	2,980,737
Netherlands.....lbs.	160,975	11,011	169,911	5,311	8,608,355	294,517	405,504	12,953
Norway.....lbs.	7,817,947	272,218	688,930	21,836	47,079,622	1,520,888	37,059,699	1,278,887
Sweden.....lbs.	12,485,922	395,765	4,875,315	145,045	102,193,885	3,213,473	95,287,471	3,072,231
Canada.....lbs.	190,524,726	7,289,455	209,037,066	8,125,050	1,645,463,516	60,659,510	1,936,847,404	74,537,141
Other countries.....lbs.	471,989	16,306	287,826	7,545	7,026,259	237,381	5,929,534	185,542
All other, n. e. s.....lbs. dut.	1,096,862	52,581	2,813,152	111,614	8,459,458	471,997	17,373,515	783,855
Grease-proof and water-proof papers.....lbs. dut.	163,738	16,013	77,403	8,728	1,333,543	124,276	2,325,651	219,370
Wrapping paper.....lbs. dut.	7,328,163	313,843			70,495,700	3,101,712	44,709,325	1,939,824
Kraft wrapping paper.....lbs. dut.			2,497,246	91,964			12,336,016	460,367
All other wrapping paper.....lbs. dut.			1,447,138	54,167			47,201,046	422,362
Writing, drawing, bond, etc.....lbs. dut.	286,090	54,771	174,570	45,945	1,699,155	396,101	2,246,841	428,983
Surface coated.....lbs. dut.	91,906	30,143	122,706	37,629	833,820	232,581	1,235,245	280,205
Tissue paper.....lbs. dut.	156,271	91,306	162,094	89,467	1,175,182	500,992	1,772,170	768,567
Paper boards—								
Pulp boards in rolls.....lbs. dut.	7,637,497	217,694	7,642,062	210,043	52,424,845	1,364,748	65,648,268	1,858,809
Other paper boards, n. e. s.....lbs. dut.	2,664,427	73,483	2,320,046	53,325	14,995,071	420,210	20,867,401	588,180
Cigarette paper, cigarette books and covers.....lbs. dut.	966,426	270,863	634,446	172,800		2,929,725	8,265,111	2,063,210
Photographic paper.....lbs. dut.	96,369	16,211	230,333	46,431	1,953,305	407,306	2,260,830	467,379
Hanging paper.....lbs. dut.	769,396	41,577	1,529,251	74,753		495,536	12,600,376	579,563
Paper boxes.....lbs. dut.		123,561	84,746				465,188	429,158
Decalcomania, not printed.....lbs. free	22,824	6,008	68,843	19,262		79,335	347,258	88,544
All other.....lbs. dut.		302,851	264,845			2,479,936		3,129,497
Books and other printed matter (total).....		756,456		740,473		6,676,945		7,235,953
Books and other printed matter.....lbs. free						1881,331		
Books and pamphlets in foreign language.....lbs. free	90,678	59,638	241,515	114,003	951,134	653,150	1,640,280	885,661
Books, maps, music, etc., 20 years old.....lbs. free	30,781	73,550	33,332	69,637	206,369	1,176,551	284,367	1,040,799
Other books, etc.....lbs. free	351,112	292,465	203,252	165,897	1,213,066	944,333	1,830,070	1,215,232
Books, pamphlets, and music, n. e. s.....lbs. dut.	210,953	167,981	273,391	186,244	1,411,951	1,249,033	2,946,995	2,032,376
Maps, charts and other printed matter, n. e. s.....lbs. dut.		60,799		82,324		343,485		681,504
Lithographically printed matter, n. e. s.....lbs. dut.						1572,749		
Cigar bands, labels and flaps.....lbs. dut.	9,924	11,620	9,496	13,507	286,695	291,509	190,432	176,103
Decalcomanias.....lbs. dut.	12,014	19,963	26,625	35,736	92,674	126,390	200,022	283,525
All other.....lbs. dut.		70,440		73,125		452,742		920,753
CRUDE PAPER STOCK.								
Rags for paper stock.....lbs. free	45,492,474	798,344	45,106,885	1,025,389	303,022,688	5,099,069	350,646,112	6,743,379
Waste, bagging, waste paper, etc.....lbs. free	12,447,161	197,755	11,317,573	121,190	89,815,865	1,320,495	84,883,380	1,021,203
Old rope and all other paper stock.....lbs. free	12,824,471	595,862	9,430,093	498,130	119,958,587	4,093,633	80,013,429	3,994,551
WOOD PULP.								
Mechanically ground.....tons. free	15,314	567,568	16,456	458,173	211,286	6,831,201	212,198	7,244,037
Chemical wood pulp—								
Sulphite, unbleached.....tons. free	26,280	1,513,026	22,447	1,142,387	429,853	21,650,913	386,173	22,739,208
Sulphite, bleached.....tons. free	18,722	1,750,347	19,171	1,476,521	208,070	17,781,236	201,555	17,119,838
Total sulphite.....tons	45,002	3,263,373	41,618	2,618,908	637,923	39,732,149	587,728	39,859,046
Imported from—								
Finland.....tons	9,479	543,471	927	54,641	49,354	2,550,148	40,701	2,484,886
Norway.....tons	5,601	471,202	516	27,797	64,158	4,543,080	50,218	4,103,967
Sweden.....tons	1,836	116,724	5,437	285,122	243,261	13,312,132	184,861	11,791,419
Canada.....tons	24,185	1,839,571	30,385	1,966,926	254,172	17,595,439	253,074	17,697,725
Other countries.....tons	3,901	292,405	4,353	284,422	26,978	1,731,350	58,874	3,781,049
Sulphate pulp, unbleached (kraft pulp).....tons. free	17,252	1,059,086	14,419	894,992	231,627	13,709,489	208,938	13,218,208
Imported from—								
Finland.....tons	4,237	246,168	652	35,894	13,987	727,800	7,024	419,555
Norway.....tons	1,150	42,429	76	4,085	8,223	424,796	9,736	536,985
Sweden.....tons	854	68,710	2,153	107,963	93,272	4,899,210	79,286	4,760,503
Canada.....tons	11,011	761,779	11,544	747,050	115,485	7,620,672	111,136	7,381,273
Other countries.....tons					660	37,011	1,756	119,892
Sulphate pulp, bleached.....tons. free	635	50,711	92	9,206	24,792	1,541,753	5,863	406,137
Other pulp.....tons. free	189	16,285	127	8,923	1,938	103,307	5,952	377,251
CHEMICALS AND OTHER PAPER MAKERS' MATERIALS.								
Colors, dyes, stains, color acids, and color bases, n. e. s.....lbs. dut.	291,546	417,709	206,986	238,587	2,046,456	2,763,015	2,644,890	3,495,985
Imported from—								
Germany.....lbs. dut.	118,747	149,284	105,315	99,381			1,326,713	1,589,782
Switzerland.....lbs. dut.	96,089	156,367	41,273	68,765			712,826	1,085,832
United Kingdom.....lbs. dut.	14,031	18,753	20,436	15,328			83,177	84,658
Other countries.....lbs. dut.	62,679	93,305	39,962	55,113			522,174	735,693
Casein or lactarene.....lbs. free					13,288,534	1346,431		
Kaolin, china, and paper clay.....tons. dut.	3,990,807	693,672	2,077,120	159,383	17,206,088	2,827,208	13,847,455	1,688,852
	20,638	234,732	37,245	391,148	257,119	2,777,696	231,294	2,430,310

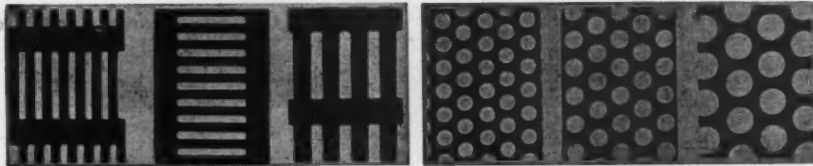
¹July 1 to Sept. 21, 1922. ²Beginning Sept. 22, 1922.

(Continued on page 66)

³July 1 to Dec. 31, 1923. ⁴Beginning Jan. 1, 1924.

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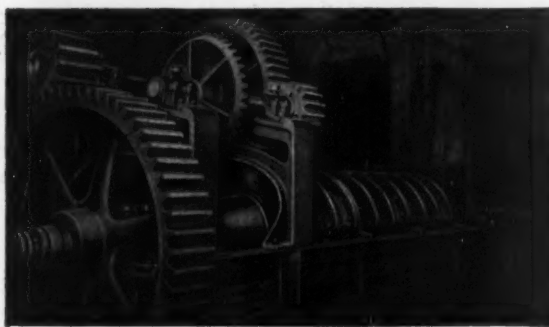
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PAPER AND PAPER STOCKS IMPORTS AND EXPORTS OF THE UNITED STATES

(Continued from page 64)

PAPER AND MANUFACTURES OF	EXPORTS—PAPER							
	April		1924		Ten Months Ending April 30		1924	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper, except printed matter (total).....		\$2,181,645		\$2,139,764		\$20,745,703		\$20,733,079
PRINTING PAPER—								
News Print Paper.....lbs.	2,947,053	144,339	3,183,618	157,186	32,998,390	1,575,996	26,987,638	1,356,189
Exported to—								
Canada.....	141,534	14,444	187,500	13,904	1,471,267	101,195	1,084,581	88,046
Central America.....	107,485	6,058	41,566	2,216	1,321,022	72,009	827,032	41,608
Mexico.....	63,486	3,790	344,134	14,312	991,218	63,672	1,495,196	76,582
Cuba.....	2,112,533	92,595	1,982,514	94,745	17,940,559	775,284	15,936,175	731,763
South America.....	170,168	9,274	140,934	8,233	5,462,574	255,562	1,491,330	80,945
Japan.....	269,293	12,332	377,885	18,371	594,388	41,407	1,129,917	72,222
Philippine Islands.....	82,554	5,846	109,065	5,403	3,961,561	191,269	3,534,988	170,339
Other countries.....					1,255,891	75,598	1,488,419	94,684
Book paper, not coated.....lbs.	2,122,680	244,047	1,257,577	143,925	24,864,195	2,522,231	17,663,299	2,024,601
Exported to—								
United Kingdom.....	31,847	6,452	72,385	14,530	599,525	107,969	629,425	119,855
Canada.....	106,995	16,580	114,544	17,163	2,240,567	267,032	1,636,774	213,725
Central America.....	6,276	6,711	98,617	9,808	443,391	49,934	695,458	81,952
Mexico.....	320,557	37,137	132,295	13,496	2,316,341	218,680	1,197,490	142,180
Cuba.....	860,936	88,155	122,842	12,969	6,316,196	628,978	3,716,295	410,912
Argentina.....	48,297	11,825	132,787	11,185	1,530,723	153,275	696,010	86,672
Brazil.....	43,557	5,361	35,642	4,272	1,277,593	188,086	484,864	57,525
Venezuela.....	35,460	3,702	18,221	1,288	500,810	55,562	496,083	32,722
Other South America.....	202,110	21,415	92,431	10,102	1,543,071	150,459	940,988	115,486
British India.....	5,551	667	3,381	456	205,371	23,214	103,532	12,873
China.....	32,856	6,367	25,121	5,148	1,047,552	103,048	2,341,101	217,494
Japan.....	83,581	8,171	97,222	13,440	2,101,459	165,236	1,355,703	137,133
Philippine Islands.....	142,191	13,685	173,043	14,701	3,224,753	286,722	1,835,093	169,555
Australia.....	34,015	3,713	60,727	5,726	759,281	84,512	708,566	91,046
Other countries.....	112,141	14,006	78,319	9,641	847,360	91,484	925,917	115,471
Cover paper.....lbs.	146,738	27,001	70,989	12,016	1,319,504	190,453	836,898	151,105
Greaseproof and waterproof paper.....lbs.	67,353	11,792	131,872	17,842	1,105,152	148,408	1,489,664	189,513
Wrapping paper—								
Kraft paper.....lbs.	44,326	4,250	31,644	2,864	568,583	45,800	705,808	70,775
Other wrapping.....	2,247,076	184,772	2,148,033	198,138	24,177,472	1,759,071	20,010,957	1,699,780
Writing paper, except papeteries.....lbs.	611,301	86,931	262,440	58,348	6,144,739	913,190	4,468,199	783,318
Surface-coated paper.....lbs.	272,277	37,960	174,014	26,553	3,052,174	450,504	2,893,711	451,789
Tissue and crepe paper.....lbs.	247,921	58,970	226,694	56,321	2,675,187	689,385	2,782,486	707,642
Toilet paper.....lbs.	352,232	48,525	390,104	49,018	4,122,808	466,435	3,416,578	393,021
Paper towels and napkins.....lbs.	121,827	18,109	138,575	21,418	856,261	145,747	1,034,775	180,971
Bristols and bristol board.....lbs.	155,039	14,404	92,687	10,126	1,424,640	132,054	1,110,197	103,029
Paper board and straw board.....lbs.	3,483,905	187,681	6,274,207	274,834	39,426,992	1,854,267	54,852,502	2,408,229
Sheathing and building paper.....lbs.	330,666	11,773	344,096	15,213	4,683,977	165,160	3,651,659	167,918
Wall board of paper or pulp.....sq. ft.	1,449,368	56,677	1,604,779	45,837	10,652,436	372,157	16,910,140	576,369
Blotting paper.....lbs.			148,669	20,079			1895,177	1109,665
Filing folders, index cards and other office forms.....lbs.			48,770	15,861			1160,655	157,695
Cigarette paper and books.....lbs.	21,874	5,050	115,677	51,076	535,903	192,297	776,816	263,250
Photographic paper.....lbs.	98,594	98,600	149,116	162,248	1,083,502	1,151,732	1,217,472	1,157,994
Paper hangings (wall paper).....yard	2,314,086	79,002	1,837,942	70,835	16,823,764	418,552	21,790,753	561,202
Paper bags.....lbs.	886,636	85,875	1,197,479	106,945	6,877,767	795,626	7,214,224	767,294
Boxes and cartons.....lbs.	1,199,935	95,815	1,497,473	112,284	8,126,034	766,709	10,030,171	930,152
Carbon paper.....lbs.	62,732	49,055	87,405	67,692	586,032	460,066	736,431	571,276
Envelopes.....lbs.	201,472	40,574	198,874	37,377	2,099,732	412,356	2,162,325	438,287
Playing cards.....pack	1,056,814	112,130	517,172	60,228	7,799,264	903,208	6,129,535	673,427
Cash register and adding machine paper.....lbs.	144,608	13,509	106,683	10,995	881,574	91,457	1,075,526	122,542
Papeteries (writing paper in boxes).....lbs.	44,442	12,042	24,036	9,543	335,081	115,477	309,039	127,202
Other paper and paper products, n.e.s.....lbs.	4,819,168	452,762	1,972,361	324,962	36,631,402	4,007,362	22,869,739	3,688,840
Books, maps, pictures, and other printed matter (total).....lbs.	3,992,199	1,386,437	4,829,447	1,656,390	39,076,731	14,474,824	44,319,473	15,751,980
Books and pamphlets.....lbs.	2,029,511	721,982	2,996,772	742,639	19,899,077	6,853,364	25,419,616	7,983,691
Maps and charts.....lbs.	11,266	9,040	8,273	11,121	146,719	135,272	132,208	135,149
Music in books or sheets.....lbs.	36,746	20,609	63,655	33,590	403,115	275,456	547,318	312,913
Souvenir post cards.....lbs.	40,510	18,024	50,889	13,338	347,101	159,477	482,850	190,985
Lithographically printed matter, except post cards and maps.....lbs.	184,234	137,149	180,880	219,282	1,611,786	1,256,931	1,729,230	1,338,787
Other printed matter.....lbs.	1,689,932	479,633	1,528,578	636,420	16,668,933	5,794,324	16,008,251	5,790,455
WOOD PULP AND PAPER STOCK								
Sulphite wood pulp.....tons	280	22,497	1,495	89,013	11,430	668,119	12,769	734,618
Soda wood pulp.....tons	168	12,967	267	26,149	2,584	226,337	1,585	154,840
Other wood pulp.....tons	50	996	96	7,219	1,866	69,150	2,637	146,997
Rags, and other paper stock.....lbs.	10,455,094	202,960	11,425,903	185,535	58,091,838	1,139,943	105,141,064	1,740,168
PAPER AND PULP MILL MACHINERY								
Paper and pulp mill machinery.....lbs.	1,570,879	253,898	480,714	147,099	11,289,818	1,750,361	8,002,105	1,627,509

¹July 1 to Dec. 31. ²Jan. 1 to Apr. 30.

**THE WM. CABLE
EXCELSIOR WIRE MFG. CO.**



Established 1846
Incorporated 1870-1894

Manufacturers of
Superior Fourdrinier
Wires
Brass, Copper and
Iron Wire Cloth of
every Description.
Best Quality of
Wire Ropes.



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Proprietors of the Penna. Dry Paint
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Color, Chemical and Copperas Works
of Allentown, Pa.


Manufacturers, Miners and Importers
of Coloring Materials, such as Vene-
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Oxides, Chrome and other Ochres,
also Paper Fillers—as Agalites, Min-
eral Fulp, Talc, China and other Clays.

**COLORS FOR PAPER
MANUFACTURERS' USE**

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Neenah, Wisconsin


Hard Maple and Gumwood Press Rolls.
Whitewood and Red Wood Felt Rolls.
Brass Felt and Table Rolls.
Iron Cores for Rubber Rolls.
Bronze Doctor Blades.
Bronze Suction boxes and Covers.
Bronze Castings of all descriptions.



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OF**

**SMALL PAPER ROLLS
OF EVERY DESCRIPTION**

ADDING MACHINE ROLLS,	AUTOGRAPH ROLLS,
CASH REGISTER ROLLS,	TIME CLOCK ROLLS,
TICKER TAPE,	RIBBON PAPER,
CLOCK ROLLS,	TELAUTOGRAPH,
BLASTING, DIE WIPING,	CARPET TISSUE,
TIRE WRAP, BED WRAP,	ROLLS FOR ANY MAKE OF
BACKING PAPER,	AUTOMATIC REGISTERS,
MAILING	DOMESTIC OR
MACHINE	EXPORT
ROLLS	PACKING



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PHILADELPHIA - PENN.

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13TH & NOBLE STS.

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WESTERN PAPER MAKERS CHEMICAL CO.**

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CLAYS ROSIN SIZE
SATIN WHITE FOAM KILLER

FELT SOAP and OTHER SPECIALTIES

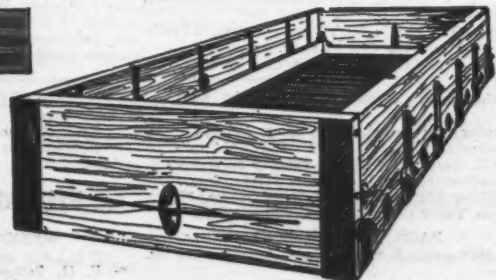
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Old Plates RECLOSED and RECUT to accurate gauge.
UNION BRONZE SCREWS for Screen Plates
ROLLED COPPER AND PHOSPHOR BRONZE
SCREEN PLATES FOR ROTARY SCREENS
Immediate Delivery of the Largest Orders. Satisfaction Guaranteed.

THE UNION WITHAM SCREEN PLATE VAT AND FASTENERS
THE ORIGINAL THE BEST
Over One Thousand in Successful Operation Recommended by Screen Makers



Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JUNE 28, 1924

SUMMARY

News print 209 rolls, 119 pgs.
 Printing paper 138 ca.
 Cigarette paper 1,896 ca.
 Paper hangings 48 rolls, 2 ca.
 Decalcomania paper 9 ca.
 Surface coated paper 107 ca.
 Colored paper 7 ca.
 Filter paper 100 bls.
 Drawing paper55 ca.
 Baryta coated paper51 ca.
 Miscellaneous paper 150 ca., 4,386 rolls, 508 bls.

CIGARETTE PAPER

P. J. Schweitzer, Paris, Havre, 25 ca.
 American Tobacco Co., Sarcozie, Bordeaux, 1,100 ca.
 R. J. Reynolds Tobacco Co., Sarcozie, St. Nazaire, 440 ca.
 De Maudit Paper Co., Sarcozie, St. Nazaire, 331 ca.

FILTER PAPER

J. Manheimer, Majestic, Bordeaux, 100 bls.

COLORED PAPER

G. C. Kofler, Sahale, Antwerp, 7 ca.

DECALCOMANIA PAPER

L. A. Cosmiller, Lutzow, Bremen, 4 ca.
 C. W. Sellers, Lutzow, Bremen, 5 ca.

PRINTING PAPER

Kupfer Bros. Co., Lutzow, Bremen, 61 ca.
 B. F. Drakenfeld & Co., Carmania, Liverpool, 31 ca.
 Perry Ryer & Co., Cameronia, Glasgow, 27 ca.
 Hermann Paper Co., Gaasterdyk, Rotterdam, 19 ca.

NEWS PRINT PAPER

J. P. Heffernan Paper Co., M. Washington, Trieste, 119 pgs.
 Fernstrom Paper Co., Glasgow Maru, Hamburg, 209 rolls.

SURFACE COATED PAPER

Globe Shipping Co., Geol. Washington, Bremen, 49 ca.
 Gevaert Co. of America, Montana, Hamburg, 58 ca.

BARYTA COATED PAPER

Globe Shipping Co., Lutzow, Bremen, 51 ca.

DRAWING PAPER

International Forwarding Co., Amer. Banker, London, 2 ca.
 E. Dietzgen & Co., Glasgow Maru, Hamburg, 53 ca.

HANGING STOCK

Drinhausen Hallkott Paper Co., Gaasterdyk, Rotterdam, 48 rolls.
 Drinhausen Hallkott Paper Co., by same, 2 ca.

PAPER

F. C. Strype, Gaasterdyk, Rotterdam, 2 ca.
 E. Dietzgen & Co., Glasgow Maru, Hamburg, 63 ca.
 Whiting & Patterson, Mauretania, Havre, 18 ca.
 D. S. Walton & Co., Stockholm, Gothenburg, 1,454 rolls.
 Chatham & Phenix Natl. Bank, by same, 227 rolls.
 C. K. MacAlpine Co., by same, 56 rolls.
 Irving Bank Columbia Trust Co., by same, 105 rolls.
 Irving Bank Columbia Trust Co., by same, 32 bls.

Quaker City Paper Co., by same, 476 bls.
 Quaker City Paper Co., by same, 2,544 rolls.
 E. H. Sergeant & Co., by same, 4 ca.
 American Express Co., Paris, Havre, 8 ca.
 Whiting & Patterson, Inc., Paris, Havre, 15 ca.
 Japan Paper Co., G. Cesare, Genoa, 40 ca.

RAGS, BAGGINGS, ETC.

S. Birkenstein & Sons, Sahale, Antwerp, 814 bls. rags.
 M. O'Meara Co., by same, 46 bls. bagging.

M. O'Meara Co., Savannah, Dundee, 56 bls. paperstock.

Castle & Overton, by same, 117 bls. rags.
 Castle & Overton, E. Luckenbach, Kobe, 40 bls. rags.

British & Irish Woolen Companies, Boston City, Bristol, 160 bls. wastepaper.
 Brown Bros. & Co., Lutzow, Bremen, 166 bls. rags.

E. J. Keller Co., Inc., by same, 244 bls. jute-waste.

E. J. Keller Co., Inc., N. Amsterdam, Rotterdam, 88 bls. rags.

E. J. Keller Co., Inc., Hansa, Hamburg, 333 bls. rags.

E. J. Keller Co., Inc., Alberta, Trieste, 236 bls. rags.

Mayer Bros., Glasgow, Hamburg, 50 bls. rags.
 W. Schall & Co., Crofton Hall, B. Aires, 78 bls. rags.

W. Schall & Co., by same, 72 bls. Newcuttings.
 Wilkinson Bros. & Co., Inc., London Commerce, London, 141 bls. rags.

S. Birkenstein & Sons, Cameronia, Glasgow, 71 bls. rags.

P. Berlowitz, Gaasterdyk, Rotterdam, 291 bls. rags.

E. J. Keller Co., Inc., by same, 243 bls. rags.

E. Butterworth & Co., Inc., by same, 105 bls. bagging.

OLD ROPE

D. M. Hicks, Sahale, Antwerp, 71 coils.
 Brown Bros. & Co., Boston City, Bristol, 265 coils.

Brown Bros. & Co., Gaasterdyk, Rotterdam, 220 coils.

WOODPULP

J. Andersen & Co., Gisla, Harnosand, 3,000 bls. sulphite pulp, 500 tons.

Johaneson, Wales & Sparre, Inc., by same, 11,250 bls. sulphite pulp, 1,875 tons.

Scandinavian Pulp Agency, Inc., by same, 1,500 bls. sulphite pulp, 250 tons.

E. M. Sergeant Co., by same, 2,700 bls. sulphite pulp, 450 tons.

M. Gottesman & Co., Inc., Gisla, Sundsvall, 1,200 bls. sulphite pulp, 200 tons.

Scandinavian Pulp Agency, Inc., by same, 1,725 bls. sulphite pulp, 345 tons.

Scandinavian Pulp Agency, Inc., by same, 525 bls. sulphate pulp, 105 tons.

H. Hollesen, Inc., Lutzow, Bremen, 1,700 bls. woodpulp.

Bulkley, Dunton & Co., by same, 3,220 bls. woodpulp.

Castle & Overton, by same, 1,010 bls. woodpulp.

Buck Kaier & Co., Glasgow Maru, Hamburg, 300 bls. woodpulp, 46 tons.

H. Hollesen, Inc., Republic, Bremen, 500 bls. woodpulp, 100 tons.

Bulkley, Dunton & Co., by same, 1,455 bls. woodpulp, 391 tons.

Scandinavian Pulp Agency, Inc., Stockholm, Gothenburg, 254 bls. sulphite pulp.

Johaneson, Wales & Sparre, Inc., by same, 125 bls. sulphate pulp.

Industrial Fibre Co., by same, 2,400 bls. sulphite pulp.

E. M. Sergeant Co., by same, 508 bls. sulphite pulp.

E. M. Sergeant Co., by same, 448 bls. dry soda pulp.

Johaneson, Wales & Sparre, Inc., Gisla, Kramfors, 11,250 bls. sulphite pulp.

Johaneson, Wales & Sparre, Inc., by same, Sundsvall, 2,400 bls. sulphite pulp.

CASEIN

National City Bank, Crofton Hall, Buenos Aires, 1,666 bags.

Bank of America, by same, 834 bags.

National City Bank, Lalande, Buenos Aires, 834 bags.

PHILADELPHIA IMPORTS

WEEK ENDING JUNE 28, 1924

E. H. Bailey & Co., Savannah, Dundee, 54 ca. printing paper.

Johaneson, Wales & Sparre, Inc., Gisla, Harnosand, 750 bls. sulphite pulp, 125 tons.

Johaneson, Wales & Sparre, Inc., by same, 6,000 bls. sulphate pulp, 1,000 tons.

Johaneson, Wales & Sparre, Inc., Gisla, Sundsvall, 1,200 bls. sulphite pulp, 200 tons.

M. Gottesman & Co., Inc., by same, 1,200 bls. sulphite pulp, 200 tons.

Price & Pierce, Ltd., by same, 1,200 bls. sulphite pulp, 200 tons.

Lagerloef Trading Co., Westport, 100 tons chemical pulp.

Castle & Overton, Sahale, Antwerp, 406 bls. rags.

L. H. Abenheimer, by same, 109 bls. rags.

A. Brown & Sons, by same, 164 bls. rags.

E. J. Keller Co., Inc., by same, 71 bls. rags.

M. Friedmann, by same, 65 bls. rags.

Castle & Overton, Glasgow Maru, Hamburg, 225 bls. rags.

J. Lang Paper Co., Glasgow Maru, Hamburg, 1,439 bls. rags.

H. Feldman Co., by same, 85 bls. rags.

G. M. Graves & Co., by same, 295 bls. rags.

The Congoleum Co., Sarcozie, Bordeaux, 34 bls. rags.

Brown Bros. & Co., by same, 348 bls. rags.

Katzenstein & Keene, Inc., London Commerce, London, 293 bls. rags.

Katzenstein & Keene, Inc., Breedyk, Rotterdam, 70 bls. rags.

Castle & Overton, by same, 1,014 bls. rags.

Castle & Overton, Cabo Ortegai, Genoa, 159 bls. rags.

Castle & Overton, City of Eureka, Genoa, 184 bls. rags.

Castle & Overton, Skipsa, Barcelona, 67 bls. rags.

E. J. Keller Co., Inc., Cabo Ortegai, Leghorn, 121 bls. rags.

E. J. Keller Co., Inc., Breedyk, Rotterdam, 229 bls. rags.

E. J. Keller Co., Inc., by same, Amsterdam, 99 bls. rags.

Wardlow Thomas Paper Co., Sahale, Antwerp, 90 pgs. old rope.

BOSTON IMPORTS

WEEK ENDING JUNE 28, 1924

J. Andersen & Co., Sturholm, Gothenburg, 2,500 bls. woodpulp.

Scandinavian Pulp Agency, Inc., by same, 10,160 bls. kraft pulp.

Scandinavian Pulp Agency, Inc., by same, 1,617 bls. sulphite pulp.

The Borregaard Co., by same, 875 bls. dry pulp.

Lagerloef Trading Co., West Maximus, 623 tons chemical pulp.

Katzenstein & Keene, Inc., Darian, London, 130 bls. new cuttings.

E. J. Keller Co., Inc., K. Maru, Leghorn, 147 bls. rags.

T. M. Duche & Sons, Lalande, Buenos Aires, 417 bags, casein.

NORFOLK IMPORTS

WEEK ENDING JUNE 28, 1924

Melby Kutroff & Co., Sturholm, Gothenburg, 509 rolls, paper.

Old Dominion Paper Co., by same, Aho, 58 rolls, news print.

Old Dominion Paper Co., by same, 139 bls. news print.

Virginia Paper Co., by same, 80 rolls, news print.

W. M. Stone & Co., by same, 252 rolls paper.

NEW ORLEANS IMPORTS

WEEK ENDING JUNE 28, 1924

Castle & Overton, Bruxelles, France, 40 bls. rags.

Castle & Overton, Maasdam, Rotterdam, 95 bls. rags.

(Continued on page 70)

1864

1924

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

Seamless felts for fast running.
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pecial felts to meet every condition.
end us your felt problems.

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"HAFSLUND BEAR"
Bleached Sulphite



"FORSHAGA"
Bleached Sulphite



"HURUM SPECIAL"
Extra Strong Kraft



KOOS

"BAMBLE"



Extra Strong Kraft

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Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

Fourdrinier
Cylinder

TISSUES

No. 1 White
Colors

Manilla, No. 2 White
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Light Weight Specialties

Rolls and Sheets

Mohawk Valley Paper Co.

INCORPORATED

LITTLE FALLS, N. Y.

Buchanan & Bolt Wire Co.
HOLYOKE, MASS.
Since 1878.

Fourdrinier Wires

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Cylinder Covers Best Quality Always

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Water Supply, Treatment of Sewage and Industrial Wastes. Super-
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GEO. Z. COLLINS & CO.
IRON OXIDES

U. S. Agent Winford Iron Ore & Redding Co.,
England

28 School St.,

Boston, Mass.

Imports of Paper and Paper Stock

(Continued from page 68)

Castle & Overton, Holland, 275 bls. woodpulp.
Lagerloef Trading Co., Evergreen City, 100 tons
chemical pulp.

BALTIMORE IMPORTS

WEEK ENDING JUNE 28, 1924

Hubles Corning & Co., Stureholm, Novrkoping,
9 bls. paper.
D. S. Walton & Co., by same, 5 bls. paper.
Fernstrom Paper Co., by same, 18 bls. paper.
Fernstrom Paper Co., by same, 2,675 rolls paper.

Whitaker Paper Co., by same, Abo, 164 rolls
news print.
Price & Pierce, Ltd., by same, Gothenburg, 1,600
bls. dry pulp.
E. M. Sergeant & Co., by same, 598 bls. dry
soda pulp.
The Berregaard Co., by same, 1,750 bls. dry
pulp.
Scandinavian Pulp Agency, Inc., by same, 1,780
bls. sulphite pulp.
M. Gottesman & Co., Inc., Thames Maru, Ham-
burg, 700 bls. woodpulp.
M. Gottesman & Co., Inc., Seattle Spirit, Ham-
burg, 300 bls. woodpulp.

Johaneson, Wales & Sparre, Inc., Trolleholm,
Gothenburg, 2,798 bls. kraft pulp.
Castle & Overton, 135 bls. woodpulp.
E. J. Keller Co., Inc., Trolleholm, Goteborg,
750 bls. woodpulp.
E. J. Keller Co., Inc., W. Cherow, Rotterdam,
65 bls. rags.

NEWPORT NEWS IMPORTS

WEEK ENDING JUNE 28, 1924

Lagerloef Trading Co., West Maximus, 1,725
tons chemical pulp.

American Paper in Mexico

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 14, 1924.—Prior to the time when German paper mills reentered the Mexican market the greatest obstacle to the expansion of the American paper trade in that market was the competition from the Mexican mills, according to a report to the Paper Division of the Department of Commerce from Commercial Attache Dye, at Mexico City on the Mexican paper market. The report continues:

In addition to this there has always been a high duty on paper which was established to protect the native industry and, even though production costs in the Mexican mills were higher than those in mills in the United States making similar grades of paper, the high duty prevented the American mills from entering the market. These Mexican mills made only the cheaper grades of paper such as newsprint, colored poster, low grade book, writing, etc., but they were the grades in greatest demand and the American mills had to be content with a trade on the higher grades. During recent years, however, consumption of the cheaper grades increased to a point where the Mexican mills could not satisfy the demand and the American mills then received a share of the business. This advantage, however, has been offset by recent German competition and the German mills are quoting such extremely low prices that even the Mexican mills notwithstanding the protection afforded by the high duties, are experiencing difficulty in meeting the competition.

The principal competition is in a ground wood, book paper which, being hard sized, can be used for printing, writing and tablet. Under the present tariff schedule, paper of this type weighing not less than 50 and not more than 100 grammes per square meter (basis 25 x 38—34 to 68 pounds per ream of 500 sheets) and containing in excess of 75 per cent of mechanical pulp pays a duty of 5 centavos (2½ cents U. S.) per kilo; that of the same weight containing not less than 40 per cent or more than 75 per cent of mechanical pulp pays a duty of 12 centavos (6 cents U. S.) per kilo, and that of same weight containing less than 40 per cent of mechanical pulp pays a duty of 23 centavos (11½ cents) per kilo. A German mill has actually sold in Mexico a paper which can be entered under the first-mentioned classification at a price of \$90.00 U. S. per 1,000 kilos, C. I. F. Vera Cruz which is equivalent to \$4.10 per 100 pounds. After deducting freight and insurance charges this would mean a price in the United States which is actually below our cost of producing a similar paper and it is absolutely impossible for an American mill to compete. The Mexican mill price on a grade similar to this but not nearly as white is equivalent to \$7.80 per 100 pounds delivered at the mill just outside Mexico City.

Competition is also encountered on cheap sulphite bonds. An order for eight carloads was recently taken by a German mill at a price of \$135.00 U. S. per 1,000 kilos C. I. F. Vera Cruz, which is equivalent to \$6.15 per 100 pounds. American prices for a similar grade today average about \$9.00 per 100 pounds F. O. B. New

York for an unwatermarked sheet and \$11.00 per 100 pounds for a watermarked sheet. Canadian bonds are being quoted F. O. B. New York at \$8.50 unwatermarked and \$10.75 watermarked. Another competitive line is a waxed tissue 12 pound basis, which is being sold by a German mill at a price of \$1.70 U. S. per ream 20 x 30 C. I. F. Vera Cruz against an American grade on which the lowest price quoted is \$2.15 per ream F. O. B. New Orleans.

Mexican Paper Conditions

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., July 1, 1924.—Mexican paper manufacturers are not so much concerned with the problem of finding raw material for their plants as they are in the political upheavals in their country. Wisconsin Rapids paper manufacturers learned from Max Lenz, who is connected with a large tissue mill in Mexico. Mr. Lenz declares his company owns spruce lands within a stone's throw of the mill which will keep the plant in operation for 75 years, and the company is pursuing a reforestation policy which assures an inexhaustible supply of wood.

Paper manufacturers are compelled to carry large supplies of oil and other materials on hand because of the danger of revolutions which would necessitate long shut-downs unless working material is available at the plant. Mr. Lenz said manufacturers are eager for a better understanding between Mexican and American governments, believing the Mexicans would have more faith in their own government if it had the whole-hearted support of America.

History of the Superheater Co.

Origin, Development, Results of Elesco, is the subject of a booklet which is published by the Superheater Company of New York and Chicago, manufacturers of Elesco Superheaters. It gives in brief form the history of the Superheater Company and the growth of its operations up to the present time when it occupies the unique position of manufacturers of superheaters for every type of steam boiler in Locomotive, Marine and Stationary services. The development of the use of high degree superheated steam is traced from the earliest experiments of the late Dr. Wilhelm Schmidt of Cassel, Germany, to the present tendencies in steam generation in this country. An interesting paragraph is the one that explains the origin of the trade name "ELESKO" applied to the products of that Company.

A copy of this book will be sent to anyone applying for it to the Superheater Company, 17 East 42nd street and mentioning the PAPER TRADE JOURNAL.

Goes With Union Paper & Twine Co.

BUFFALO, N. Y., June 30, 1924.—T. William Powell, who for the past 16 years has represented the Whitaker Paper Company in Western Pennsylvania and Western New York, has resigned from that company. Beginning July 1, he will cover Central New York State territory, with headquarters in Rochester, N. Y., for the Union Paper and Twine Company, of this city.

KVP

Papers:


Genuine Vegetable Parchment
For wrapping all moist and greasy foodstuffs.

Bread Wraps—Waxed Papers
For tight-sealing cartons and wrapping dry foods.

Bond and Ledger Papers
All standard sizes, weights and colors.

Handy Household Papers in Rolls
Ask and ye shall receive full information.

KALAMAZOO VEGETABLE PARCHMENT CO.
Manufacturers of
PARCHMENT, WAXED & BOND PAPERS



KALAMAZOO, MICHIGAN

Clay

300 tons daily

AMERICAN MADE FOR AMERICAN TRADE

Some portion of our clay production is *pulverized*. That part of it which is *pulverized* is, as far as we know, the only *pulverized* clay which is washed and refined before being *pulverized*. This insures greater freedom from impurities and an exceedingly uniform product.

Prices on M-E pulverized clay may surprise you even considering this additional treatment.

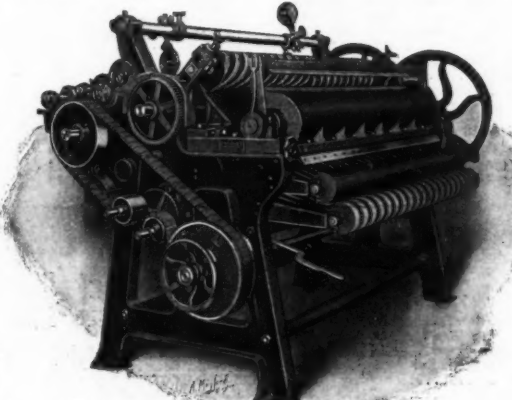
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THE MINER-EDGAR CO.
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Paper Cutters

Single, Duplex and Diagonal



Cutter Knives Patent Top Slitters

HAMBLET MACHINE CO.
LAWRENCE, MASS.

FITCHBURG DUCK MILLS
ESTABLISHED
1844.
FITCHBURG, MASS.

MANUFACTURERS OF

Standard and Multiple DRYER FELTS

English Weave in Two, Three, Four, Five
and Six Ply

60 Inches to 176 Inches in Width

Fine Faced Felts for Fine Papers
Absolutely No Felt Marks in Paper

— TRIUNE Three Ply Felts for Coarse Papers —

Market Quotations

PAPER SECURITIES CLOSING PRICES TUESDAY

Reported by Stewart Tuttle & Co., Inc., 120 Broadway, New York

STOCKS	BID	ASKED
Abitibi Power and Paper Company, Ltd.	55 3/4	56
Abitibi Power and Paper Company, Ltd., Pfd.	100 1/2	101
American Writing Paper Company, Pfd.	2 3/4	2 3/4
Brompton Pulp and Paper Company, Ltd.	30 3/4	31 3/4
Donnacona Paper Company, Ltd.	45	50
Donnacona Paper Company, Ltd., Pfd.	98	100
International Paper Company	47 3/4	48
International Paper Company, Pfd.	71	72
Laurentide Company, Ltd.	85	86 1/2
Price Brothers	40 1/2	42
St. Maurice Paper Co., Ltd.	85	89
Smith (Howard) Paper Mills, Ltd.	45	45 1/2
Spanish River Pulp and Paper Mills, Ltd.	106	106 3/4
Spanish River Pulp and Paper Mills, Pfd.	112 3/4	113
Union Bag and Paper Corp.	48	50
Wayagamack Pulp and Paper Company, Ltd.	33 3/4	35
West Virginia Pulp and Paper Company	50	54

BONDS	BID	ASKED
Abitibi Power and Paper Company, Ltd., 1st 6s, 1934..	99	101
Abitibi Power and Paper Company, Ltd., Gen. 6s 1940..	93	95
Abitibi Power and Paper Company, Ltd., Con. 8s 1931..	102 1/4	103 1/4
Belgo Canadian Paper Company, 1st 6s 1943..	93 1/2	94 1/2
Brown Company Serial 6s..	98	98 1/2
Carthage Sulphite Pulp and Paper Company, 1st 8s 1941	35	50
Continental Paper and Bag Mills Corporation, 1st and Ref. 6 1/2s, Series "A," 1944..	90	92 1/2
Donnacona Paper Company, Ltd., 1st 6s 1940..	97	100
Eddy Paper Company, 1st 7 1/2s 1931..	96 1/2	98 1/2
Gair (Robert) Company, 1st 7s 1937..	95	96
International Paper Company, 1st and Ref. 5s (Series "B") 1947..	86 1/4	86 1/2
Matagami Pulp and Paper Company, 1st 6s 1937..	58	60
Matagami Pulp and Paper Company, 1st 7s 1949..	20	25
Oswego Falls Corporation, 1st 8s 1942..	100 3/4	101 3/4
Oxford Paper Company, 1st and Ref. 6s (Series "A") 1947..	98	100
Parker, Young Company, 1st 6 1/2s 1944..	95 1/4	97 1/4
Paterson Parchment Paper Company, 1st 6s (Series "A") 1938..	95 1/4	96 1/4
Peatigo Paper Company, 1st 7s (Series "B") 1942..	92	94 1/4
Price Bros. & Co., Ltd., 1st 6s (Series "A") 1943..	97 1/2	98 1/2
Provincial Paper Mills, Ltd., 1st 6s 1940..	98	100
Riordon Pulp and Paper Company, Ltd., Gen. 6s 1929..	17	19
Riordon Pulp and Paper Company, Ltd., 6s 1942..	80	84
Riordon Company, Ltd., 1st and Ref. 8s 1940..	84	85 1/2
River Raisin Paper Company, 1st 8s 1936..	103 1/4	104 1/2
Smith (Howard) Paper Mills, Ltd., 6s 1934..	95	95 1/2
Smith (Howard) Paper Mills, Ltd., 1st Ref. 7s 1941..	92 1/4	95
Spanish River Pulp and Paper Mills, Ltd., 1st 6s 1931..	101	103
Spanish River Pulp and Paper Mills, Ltd., Gen. 8s 1941	102 1/4	103 1/4
Wayagamack Pulp and Paper Company, Ltd., 1st 6s 1951	74	77

Paper	F. o. b. Mill
Ledgers	38.80
Bonds	45.00
Writings—	
Extra Superfine	30.00
Superfine	30.00
Tab Sized	15.00
Engine Sized	11.00
News—	
Rolls, contract	3.65
Rolls, transit	3.75
Sheets	4.15
Side Runs	3.00
Book, Cased—	
S. & S. C.	7.25
M.	7.10
Cased and Enamel	9.00
Lithograph	9.00
Tissues—	
White No. 1	.75
White No. 2	.70
Colored	1.05
Anti-Tarnish	1.35
Kraft	.85
Manila	.75
Kraft—	
No. 1 Domestic	5.50
No. 2 Domestic	5.00
Imported	4.75
Manila—	
No. 1 Jute	7.50
No. 2 Jute	7.75
No. 1 Wood	4.75
No. 2 Wood	4.00
Butchers	4.00
Fibre Papers—	
No. 1 Fibre	5.50
No. 2 Fibre	4.75
Common Bogus	2.40
S. Screening	3.25
Card Middle	4.00

Boards—per ton—	
News	40.00
Straw	40.00
Chip	37.50
Binders' Boards	70.00
Sgl. Mla. Ll. Chip	50.50
Wood Pulp	70.00
Container	57.50
Sulphate Screenings—	
Coarse	.80
Refined	1.75
Ground Wood—	
Screenings	20.00
Glassine—	
Bleached, basis 25 lbs.	12.00
Bleached, basis 20 lbs.	8.85
Bleached, basis 14.00 lbs.	17.00

Mechanical Pulp	(Ex-Dock)
No. 1 Imported	35.00
(F. o. b. Mill)	40.00
No. 1 Domestic	27.50

Chemical Pulp	(Ex-Dock, Atlantic Ports)
Sulphite (Imported)—	
Bleached	3.75
Easy Bleaching	2.90
No. 1 strong unbleached	2.60
No. 2 strong unbleached	2.20
No. 1 Kraft	2.50
Sulphate—	
Bleached	3.50
(F. o. b. Pulp Mill)	3.65
Sulphite (Domestic)—	
Bleached	3.50

Easy Bleaching Sulphite	2.50
News Sulphite	2.40
Mitscherlich	3.00
Kraft (Domestic)	2.50
Soda Bleached	3.90

Domestic Rags	Prices to Mill, f. o. b. N. Y.
New Rags	
Shirt Cuttings—	
New White, No. 1	13.00
New White, No. 2	6.25
Silecias, No. 1	7.50
New Unbleached	10.50
Washables	5.50
Fancy	6.50
Blue Overall	8.00
New Blue	5.50
New Black Soft	4.65
New Light Sec.	3.00
O. D. Khaki Cuttings	4.75
Men's Corduroy	4.00
New Canvas	7.00
New Black Mixed	2.75

Old Rags	
White, No. 1—	
Repacked	6.50
Miscellaneous	5.50
White, No. 2—	
Repacked	4.25
Miscellaneous	3.75
St. Soiled, White	2.80
Thirds and Blues—	
Repacked	3.62 1/2
Miscellaneous	2.90
Black Stockings	3.75
Roofing Rags—	
Cloth Strippings	1.90
No. 1	1.65
No. 2	1.55
No. 3	.75
No. 4	.90
No. 5A	1.50

Foreign Rags	
New Light Silecias	7.50
Light Flannelettes	8.00
Unbleached Cottons	9.00
New White Cuttings	11.50
New Light Oxford	7.75
New Light Prints	7.25
New Mixed Cuttings	3.25
New Dark Cuttings	3.00
No. 1 White Linens	9.00
No. 2 White Linens	7.00
No. 3 White Linens	6.00
No. 4 White Linens	4.50
Prints	4.00
Old Light Prints	3.00
Med. Light Prints	2.40
Dutch Blue Cottons	3.50
Ger. Blue Cottons	3.00
Ger. Blue Linens	3.50
Checks and Blues	2.25
Dark Cottons	1.50
Shoppery	1.40
French Blues	3.25

Bagging	Prices to Mill F. o. b. N. Y.
Gunny No. 1—	
Foreign	1.60
Domestic	1.55

Wool, Tares, light	1.40
Wool, Tares, heavy	1.45
Bright Bagging	1.15
Sound Bagging	.90
Manila Rope—	
Foreign	6.25
Domestic	6.50
New Bu. Cut.	2.40
Hessian Jute Threads—	
Foreign	2.40
Domestic	2.10

Old Waste Papers	(F. o. b. New York)
Shavings—	
Hard, White, No. 1	3.25
Hard, White, No. 2	2.90
Soft, White, No. 1	2.45
Flat Stock—	
Stitchless	1.30
Over Issue Mag.	1.35
Solid Flat Book	1.20
Crumpled No. 1	1.90
Scld Book Ledger	1.80
Ledger Stock	1.30
New B. B. Chips	.50
Manilas—	
New Env. Cut.	2.45
New Cut. No. 1	1.65
Extra No. 1 old	1.30
Print	.80
Container Board	.60
Bogus Wrapp.	.60
Old Krafts Machine compressed bales	1.65
News—	
No. 1 White News	1.65
Strictly Overseas	.80
Strictly Folded	.55
No. 1 Mixed Paper	.45
Common Paper	.35

Twines	(F. o. b. Mill)
No. 1	.43
No. 2	.41
No. 3	.40
India, No. 6 basis—	
Light	.17
Dark	.16
B. C., 18 basis	.41
A. B. Italian, 18 Basis	.51
Finished Jute—	
Dark, 18 basis	.26
Light, 18 basis	.28
Jute Wrapping, 3-6 Ply—	
No. 1	.20
No. 2	.18
Tube Rope—	
4-ply and larger	.15
Fine Tube Yarn—	
5-ply and larger	.20
4-ply	.21
3-ply	.22
Unfinished India—	
Basis	.14
Paper Makers' Twine	
Balls	.11
Box Twine, 2-3 ply	.14
Jute Rope	.15
Amer. Hemp, 6	.30
Sisal Hay Rope—	
No. 1 Basis	.14
No. 2 Basis	.10
Sisal Lath Yarn—	
No. 1	.14
No. 2	.11
Manila Rope	.18

CHICAGO

[FROM OUR REGULAR CORRESPONDENT]

Paper	F. o. b. Mill
All Rag Bond	35
No. 1 Rag Bond	25
No. 2 Rag Bond	14
Water Marked Sulphite	9
Sulphite Bond	7 1/4
Sulphite Ledger	9 1/2
Superfine Writing	18
No. 1 Fine Writing	14
No. 2 Fine Writing	12
No. 3 Fine Writing	9
No. 1 M. F. Book	5 1/4
No. 1 S. & S. Co. Book	6 1/4
Coated Book	8
Coated Label	8
News—Rolls, mill	3 1/4
News—Sheets, mill	4
No. 1 Manila	4 1/4
No. 1 Fibre	4 1/4
No. 2 Manila	3 1/4
Butchers' Manila	4
No. 1 Kraft	5 1/2
No. 2 Kraft	4 3/4
Wood Tag Boards	4 1/2
Sulphite Screenings	2 1/4
Boards, per ton—	
Plain Chip	35.00
Solid news	37.50
Manila Line Chip	50.00
Container Lined—	
85 Test	57.50
100 Test	62.50
Old Papers	F. o. b. Chicago
Shavings—	
No. 1 Hard White 3.00	3.00
White Envel. Cuttings	3.00
No. 1 Soft Shav.	2.63
No. 1 Mixed	1.25
No. 2 Mixed	1.15
Ledgers and Writings	1.45
Solid Books	1.35

No. 1 Books, Light.	1.25	@	1.30
Blanks	1.65	@	1.75
Ex. No. 1 Manila.	1.90	@	2.00
Manila Envelope			
Cuttings	2.10	@	2.15
No. 1 Manilas	.95	@	1.00
Folded News (over issue)	.85	@	.90
Old Newspapers—			
No. 1	.80	@	.85
No. 2	.65	@	.70

Mixed Papers—			
No. 1	.65	@	.70
No. 2	.55	@	.60
Straw Clippings	.80	@	—
Binders' Clippings	.80	@	—
Kraft	1.90	@	2.00
New Kraft Cuts	2.10	@	2.15
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	\$.33.00	@	—
No. 2	31.00	@	—
No. 3	29.00	@	—
No. 4	29.00	@	—

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT]

Paper			
Bonds	.09½	@	.53
Ledgers	.15	@	.40
Writings—			
Superfine	.15	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.30
Fine, No. 2	.20	@	.25
Fine, No. 3	.15	@	.20
Book, M. F.	.09¾	@	.12¾
Book, S. S. & C.	.11	@	.15
Book, Coated	.14¾	@	.20
Coated Lithograph.	.10	@	.15
Label	.10	@	.15
News	.05	@	.07
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.88	@	.10
Manila No. 2	.07¾	@	.08
No. 2 Kraft	—	@	.08¾
No. 1 Kraft	—	@	.09¾
Common Bogus	.03½	@	.04
Shaw Board	.55.00	@	.60.00
News Board	.42.50	@	.45.00
Chip Board	.40.00	@	.45.00
Wood Pulp Board.	2.75	@	3.00
(Carload Lots)			
Binder Boards—			
Per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	.61.00	@	.63.00
Slaters	.66.00	@	.68.00
Best Tarred, 1-ply (per roll)	1.70	@	1.80
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.10

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	1.60	@	1.65
Domestic	1.75	@	—
Manila Rope	6.00	@	6.37½
Sisal Rope	1.25	@	—
Mixed Rope	1.30	@	—
Scrap Burlaps	1.00	@	1.25
Wool Tares, heavy	2.00	@	2.13
Mixed Strings	1.30	@	—
No. 1, New Lt. Burlap	2.00	@	—
New Burlap Cuttings	2.00	@	2.25

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard	4.00	@	4.10
White	—	@	—

BOSTON

[FROM OUR REGULAR CORRESPONDENT]

Paper			
Bonds	.09	@	.63
Ledgers	.09	@	.35
Writings	.08¾	@	.42
Superfine	.16	@	.26
Fine	.15	@	.18
Books, S. & S. C.	.07¾	@	.12
Books, M. F.	.07¾	@	.09¾
Books, coated	.09	@	.15
Label	.09	@	.13
News, sheets	4.75	@	6.00
News, rolls	4.00	@	4.50
Manilas—			
No. 1 Manila	6.00	@	7.00
No. 1 Fiber	.06¾	@	.07
No. 1 Jute	9.00	@	10.50
Kraft Wrapping	.07	@	—
Common Bogus	3.50	@	3.85

Boards

(Per Ton Destination)

Chip	42.50	@	45.00
News, Vat Lined	44.00	@	45.00
Wood, Vat Lined	—	@	52.50
Filled News Board	45.00	@	47.50
Solid News Board,			
No. 4 Finish	60.00	@	—
S. Manila Chip	57.50	@	62.50
Pat. Coated News	75.00	@	85.00

Old Papers

Mixed paper	.50	@	.55
Folded news	.62½	@	.65
Soft white shavings	2.60	@	2.75
Hard white shavings	3.50	@	3.75
Kraft paper	1.90	@	2.00
Ledger and letter	2.15	@	2.35
No. 1 books and magazines	1.35	@	1.50
Manila paper No. 1	1.70	@	1.75
Solid ledgers	2.50	@	2.75
No. 1 roofing rags	1.65	@	1.70
No. 2 roofing rags	1.50	@	1.60
No. 3 gunny bagging	.75	@	.85
No. 4 Brussels and hard back carpets	1.60	@	1.70
No. 5 roofing rags	.90	@	1.00
A's	—	@	—
B's	—	@	—
C's	—	@	—
No. 6 City dump rags	—	@	—
Manila rope, domestic	.6	@	.6½
Mixed strings	1.20	@	1.35
Jute strings	1.40	@	1.50

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13¾
Dark tinted	.13½	@	.15
Writings (sulphite)	—	@	.13
Writings	.09½	@	.12
News, f. o. b. Mill—			
Rolls (carloads)	3.75	@	—
Sheets (carloads)	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rap	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	\$26.00	@	28.00
Sulphite easy bleaching	55.00	@	60.00
Sulphite news grade	50.00	@	55.00

Sulphite, bleached	75.00	@	80.00
Sulphite	60.00	@	65.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut.	3.60	@	—
Soft White Book shavings	2.80	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.35	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writings	1.68	@	—
Solid Ledgers	2.00	@	—
Manilas—			
New Manila Cut.	—	@	1.60
Printed Manilas	1.10	@	—
Kraft	2.05	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Folded News	.80	@	—
No. 1 Mixed Papers	—	@	.40
Domestic Rags—			
Price to mills, f. o. b. Toronto			
Per lb.			
No. 1 White shirt cuttings	.13¾	@	.13¾
No. 2 White shirt cuttings	.06¾	@	.07
Fancy shirt cuttings	.06¾	@	.06¾
No. 1 Old Whites	.04¾	@	.05
Third and blues	—	@	—
Per cwt.			
Black stockings	.03	@	—
Roofing stock:			
No. 1	—	@	—
No. 2	—	@	—
Manila rope	.06¾	@	.06¾
No. 2	1.55	@	—

Secure Use of Ashland Dock

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., July 1, 1924.—The Consolidated Water Power and Paper Company of Wisconsin Rapids has secured the use of the Commercial dock at Ashland and is equipping it for receiving and storing pulp shipped from its Canadian mills to Wisconsin. The company has been operating an enormous pulpwood hoist at Ashland for several years to take care of the large quantities of wood which are being shipped across Lake Superior for re-shipment to its Wisconsin mills. The company recently acquired several boats which are being fitted for transporting pulp across the lake.

New Riverside Plant Operating

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., July 1, 1924.—Manufacture of paper in the new plant of the Riverside Fibre and Paper Company has been started and arrangements soon will be made for dismantling the old mill of the company. When everything in the new plant is in good working order, the old plant will be closed, the paper machine dismantled and moved to the new building. The Riverside company's new plant is considered one of the most modern equipped in the country.

W. N. Ellis Returns to Whitaker Paper Co.

W. N. Ellis has severed his connection with Stone & Andrews of Boston and will be with the Whitaker Paper Company, Baltimore, calling on the printing trade in that city. Mr. Ellis is returning to his first love as his first position was with the Whitaker Paper Company, and he was formerly manager of that company's Dayton, Ohio, branch. He left Dayton to become Manager of the Seaman Paper Company's Boston branch, and later became connected with Stone & Andrews. Mr. Ellis commences his new duties with the Whitaker Paper Company, July 1.

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, JULY 2, 1924

There was a better tone in the paper market the past week in spite of the hot weather, too much politics and other antagonistic factors. Nothing phenomenal in the way of improved business transpired nor do the producers look for anything phenomenal for many weeks to come, but there were various indications of materially improved business being near at hand. What the change is due to is hard to explain but is probably more because of the fact that the paper business has been scraping along on rock bottom for a long time than anything else. The end had to come some time and this is apparently the beginning of the end. While orders were not recorded in any greatly increased volume there was a large increase in the number of inquiries and in lieu of actual business the inquiries are exceedingly welcome at this stage of the game. They at least indicate a new interest and a fair percentage of the inquiries should materialize in good business within the next week or two.

The real event of the week in the paper market was the cut in the price of news print. The new schedule of \$73 a ton went into effect yesterday. There is no real story in connection with the news print situation except that the producers have received many letters from the consumers expressing their satisfaction with the new price and several of them going so far as to state that they had not looked for a cut. Contracts are being rapidly renewed under the new figure and producers will be busy for the next week entering into these contracts.

From the numerous inquiries which are being received in regard to paper of all grades it is evident that consumers are beginning to be inconvenienced by the policy of hand to mouth buying which has been in vogue so long. They have bought so close that they are without anything to fall back on. This means that a more liberal buying policy will have to be engaged in soon and the great number of inquiries indicate that the buyers realize that and are preparing for the change in their buying methods.

Fine papers continue to attract a fair demand. Ledgers and bonds are in very good demand.

Coarse papers, which have been slow, picked up materially during the week and many inquiries have been received regarding them. Tissue and manila remain slow but consumers have evinced a new interest in them and some good business under these heads is in sight.

According to the board men their business enjoyed quite a substantial impetus during the week and they are talking much more optimistically than for weeks.

Mechanical Pulp

Business is very good in the pulp market. Prices show little tendency to change. The demand for mechanical pulp remains about the same as for several weeks and general market conditions are unchanged.

Chemical Pulp

Chemical pulp continues to attract some good orders and prices remain firm. There is a scarcity of good imported pulp but shipments which are beginning to arrive from abroad will soon remedy this situation.

Rags

There has been a pretty fair demand for all grades of rags and a slight improvement has been noted. The domestic grades appear to be all on an upward trend. Roofing rags have showed the most, marked improvement. These underwent a change for the better two weeks ago and have been steadily improving ever since. The prices hold strong.

Old Rope and Bagging

The demand for old rope and bagging is very light. The price remains about the same and little trading in this item is being done at the present time.

Waste Paper

Dealing in waste paper is largely in the air. There has been some improvement in all but the lower grades. The latter remain very slow and prices are unchanged.

Twine

The twine market, which has been flat for weeks, is now at an even lower ebb and there is apparently little for the dealers to look forward to in the immediate future. The prices have undergone no change and one dealer in stating the conditions says: "If prices were prohibitive there could hardly be less business than there is now when prices are so advantageous. There is practically no business and certainly not enough to warrant any change in the prices quoted. They are as low as they can well go and as high as buyers, with their limited desire to buy, would stand."

DECLINE IN PHILADELPHIA

(Continued from page 36)

remain until September. Upon the return to Philadelphia, Mr. Mann will become an associate of the David Weber Company.

Frederick S. Balch, head of the Keystone Company, 318 Drexel Building has returned from a week's sojourn in New Hampshire and a visit to the New England mills in that vicinity.

The Southern territory has been receiving the attention of W. A. Lightfoot, Philadelphia manager of the United Paper Boards Company, Bourse building. Lightfoot has been spending some time in Baltimore, Richmond and Washington and other Southern points.

Charles T. Webb, 55th and Webster streets, is now representing the Thomas Stationery Company of Springfield, Mass., with its line of wrappings, Krafts and plates in the Philadelphia territory.

Robert Rudolph who is head of the Boxmakers' Paper Department of the Beck Paper Company, 609 Chestnut street, is getting out a new sample book of papers adapted for this specialized line which contains 26 new numbers of fancy printed papers and which will be issued this week.

Ralph A. Tobin has been added to the sales organization of the Saxe Paper Company, 320 Race street and will devote his time to the textile trade.

John S. Heverly of the Garrett Buchanan Company who has been spending several weeks in the Great Lakes region on a combined vacation and mill visiting trip has returned to his desk.

Bids For Government Paper

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., July 2, 1924.—The Government Printing Office has received the following bids for 10,000 pounds of 25 x 38: end paper: R. P. Andrews Paper Company, at .765 cents per pound; Whitaker Paper Company, at .765 cents per pound; Whitaker Paper Company, .779 cents and .799 cents; American Writing Paper Company, .82 cents; Reese & Reese, .799 cents; Old Dominion Paper Company, .719 cents, .899 cents and .949 cents; Maurice O'Meara Company, .9 cents; Dobler & Mudge, .7 cents; and Broderick Paper Company, .68 cents.

The Government Printing Office, will receive bids on July 3 for 14,400 pounds (900 reams) of white, pink and canary, 21 x 32, No. 9 sulphite manifold paper.

Bids will also be received on the same date for 12,500 pounds (1,000 reams) of 21 x 32, No. 7 white manifold bond paper; for 12,500 pounds (1,000 reams) of 21 x 32, No. 7 white record manifold bond paper; and for 16,000 pounds (1,000 reams) of 21 x 32, No. 9 white record manifold bond paper.

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A Remarkable Range of Grades, Textures and Weights

Orr Endless Felts can now be obtained up to 86 feet in length.

With our enlarged new equipment we can now furnish Paper Manufacturers with endless felts up to 86 feet in length.

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THE ORR FELT & BLANKET COMPANY, Piqua, Ohio

Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, JULY 2, 1924.

Slow as has been the chemical market for a number of weeks it has passed into a new stage of slowness during the past week which, perhaps, can best be characterized as "unbelievably dull." There is practically no buying of several of the commodities and none of them exhibit any real activity.

Contract stock is not being moved and practically every overture on the part of the dealers is met by a counter proposition on the part of the buyers—to take advantage of the exceptionally low prices with the proviso that the buying be done for future delivery. Invariably these offers are being declined for the dealers realize that, as welcome as the business would be at the present time, it would simply mean selling at a very narrow margin of profit and depriving themselves of future business at a decent margin of profit.

Daily the market records sales in various of the commodities at startling prices—prices much under the quotations published in the PAPER TRADE JOURNAL. These, however, are exceptional cases and do not set the standard of the market. They are prices conceded by dealers who are influenced by some necessity to move stock immediately. Misleading rumors as to market prices are the natural consequence of these sales and often a buyer, learning of a sale of a commodity at the unusual concession, finds himself pursuing a veritable Will o' the Wisp when he sets out to duplicate the purchase.

To sum the condition up it may be said that no one is anxious to buy and no one is buying unless he has to. It is a waiting game and there will probably be little buying and selling for some time except where the dealers are smoked out and have to sell or where grim necessity forces the buyers to buy. "Politics is to blame," declare the dealers, and those who are most conservative predict that it will be September 1 before the market comes back to anything like its own. Prices are still hanging where they were a week ago, with the exception of salt cake which has undergone two recent cuts and which came down again during the past week.

BLANC FIXE.—There has been a very considerable falling off in the demand for blanc fixe. This commodity has been showing very good vitality during the dull period, lavish orders from the rubber industry and the paint trade being its sustaining power. For some reason the orders from these sources are diminishing in number and volume and blanc fixe has no where else to turn to make up the shortage. Its plight, however, is not to be compared with the troubles of most of the other commodities and the price still holds at from \$75 to \$80 a ton for the powder and from \$50 to \$55 for the pulp.

BLEACHING POWDER.—There is an indication of a weakening in price in bleaching powder although, at this writing, the same schedule is being maintained. There is no doubt but that there is a considerable surplus on the market and a price cut within the next week seems a reasonable certainty. The price is now from 1.90 to 2.15 cents a pound.

CAUSTIC SODA.—The demand for caustic soda is slow although the last day or two showed something of an improvement over the first part of the week. The price is 3.10 cents a pound on a flat basis at the works.

CASEIN.—Everything considered casein held up exceptionally well during the last week. The price is firm. From 10½ to 11 cents a pound is quoted.

CHINA CLAY.—Although the demand for china clay is not what it has been it is holding up very well. There have been various reported transactions where concessions were made but the standard market price has not been disturbed. Dealers are still asking from \$16 to \$20 a ton for the imported grades and from \$12 to \$15 a ton for the domestic grades.

CHLORINE.—Chlorine is still staggering along and the past

week has brought it no change. The price remains at from 4.50 to 7.00 cents a pound in tanks.

ROSIN.—The rosin demand continues noticeably slow. The price was recently cut and sales at the new figure have been less than they were at the higher figure. The price is from \$5.75 to \$5.80 for 280 pounds.

SALT CAKE.—Salt cake is in about as dire a condition as any of the commodities. This is one of the commodities where if a dealer has a supply on hand, price ceases to be an object. This disposition to unload at any cost probably explains the steady cutting that has been done. Twice recently the price has been slashed and the past week the dealers lopped off another portion. A week ago it was quoted at from \$17 to \$20 a ton and today it is quoted at from \$15 to \$17 a ton.

SODA ASH.—The demand for soda ash has been steadily falling off for some time and it continued to drop off the past week. This is one of the commodities where buyers are declining to take out their contracts. The price is 1.38 cents a pound on a flat basis at the works.

SULPHATE OF ALUMINA.—No new business entered the sulphate of alumina channel the past week. This commodity is very quiet with buyers cutting their contracts and showing a general lack of interest. The price holds at from 1.30 to 1.35 cents for the commercial grade at the Eastern works and from 2.15 to 2.35 cents a pound for iron free.

SULPHUR.—The sulphur demand continues going down the skids but the price is holding up at from \$18 to \$19 a ton.

TALC.—Talc has fallen off but its demand has been very fair concerning the general conditions of the market. The price is still from \$16 to \$17 a ton.

Corning Fibre Box Factory Starts

[FROM OUR REGULAR CORRESPONDENT]

CORNING, N. Y., July 1, 1924.—The Corning Fibre Box Corporation, which was organized last January, has commenced operation in a limited way in its new building in Walnut street.

Charles Roehm, president of the company will be the manager. He will be assisted by Willis E. Williams, Jr., who will be in charge of the office. Jacob Beck is foreman of the plant and in charge of the operating end. He was formerly of Wheeling, W. Va. At present twenty men are employed at the plant. The capacity is fifty men and they will be added from time to time.

The Corning Fibre Box Corporation is incorporated at \$125,000 and it is expected that when the full force has been added the concern will do a maximum business of \$600,000 a year.

Quebec Pulpwood Dealers Organize

Incorporation is announced at Quebec, of D. H. Penington, J. Oscar Auger and Armand G. Auger, under the name of the Quebec Pulpwood Dealers' Association with a capital of \$20,000 for the purpose of maintaining friendly relations between pulpwood dealers and protecting their rights. Other purposes of the new association include safeguarding the interests of all those interested in pulpwood operation, manufacturing, sale or distribution, to protect its members against any methods not in accordance with trade regulations and to keep its members posted on any important information concerning that business.

Abitibi Installs Taylor Stokers

The Taylor Stoker Company, Limited, with offices in Montreal and Philadelphia announce the purchase by the Abitibi Power and Paper Company, Limited, Iroquois Falls, Ont., of two Taylor Stokers for their mill at Iroquois Falls, Ontario. These stokers are in addition to the eight Taylor Stokers now installed at this mill.